

Resistance in Duct System

Notes	0.008	0.010	0.012
Based on loss of 1.0 velocity pressure			

Notes:
Based on loss of 1.0 velocity pressure

House Insulation

Case	Wall	Ceiling	Strip	Sash
a	None	None	None	
b	1-in.	None	None	
c	2-in.	None	None	
d	3-in.	None	None	
e	3-in.	None	None	

Per Cent of Maximum Rate

40	60	80	100
12.6	17.4	19.7	20.9

Flue Gas Temperature

Per Cent CO ₂	4	5	6	7
17.4				
20.6				
23.8				
27.1				
30.5				
33.8				
37.3				
40.9				

AMERICAN ARTISAN

WARM AIR HEATING - SHEET METAL CONTRACTING
RESIDENTIAL AIR CONDITIONING

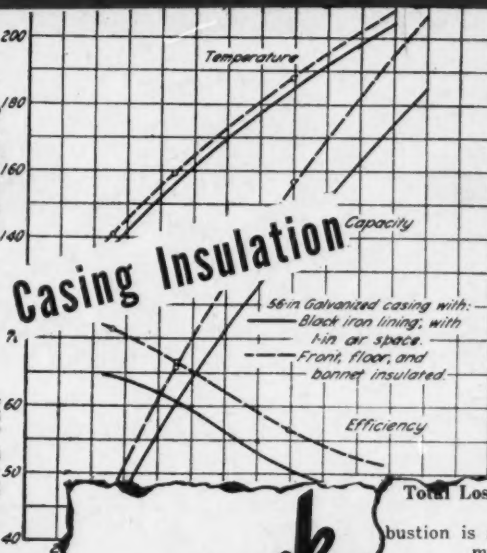
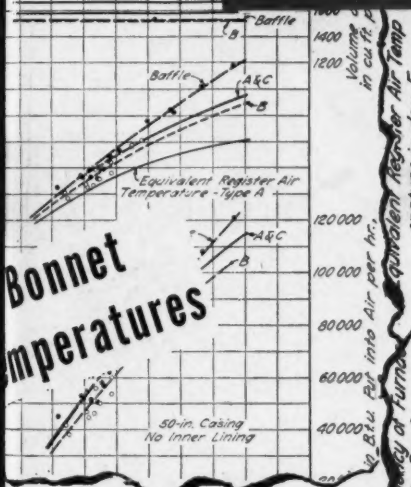


Fig. 263. ROOM, REGISTER AIR, AND FLUE-GAS TEMPERATURE RECORDS FOR DUAL CONTROL. In reading the Register Air Temperature chart deduct 50 deg. F. from the chart figure.

Per Cent CO₂ in Flue Gas

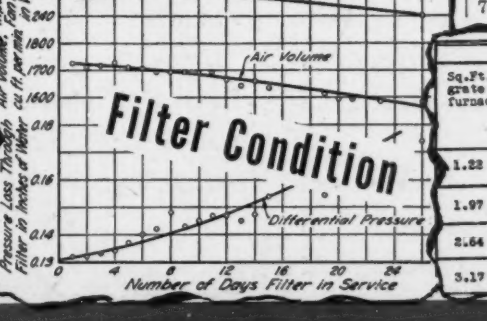
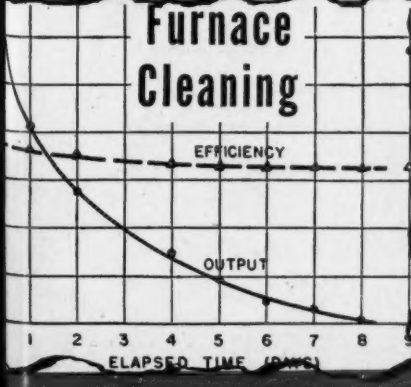
4	5	6	9	10
22.3	19.2	17.2	1	22.1
29.1	24.8	22.0	19.8	
36.0	30.4	26.7	24.0	
42.9	36.2	31.5	28.1	
50.2	42.1	36.6	32.	
57.6	48.0	41.5	36.8	
65.2	54.1	46.3	41.0	37.2
72.5	60.3	51.4	45.3	37.8

Check TO SAVE FUEL

Total Loss in Flue Gas in Per Cent for High Volatile, Bituminous B Coal
Combustion is assumed as being complete, that is with no carbon monoxide or free hydrogen in flue gas)

Combustion Efficiency

Flue Gas Temperature Deg. F.	300	400	500	600	700
20.6	14.7	13.7	12.8	12.1	11.5
27.1	16.5	15.5	14.6	13.9	13.3
34.	18.9	17.8	16.8	16.0	15.3
41.8	20.6	19.8	18.8	17.9	
49.1	22.1	21.2	20.2	19.3	
56.4	23.4	22.4	21.4	20.5	
63.9	24.7	23.6	22.6	21.6	
71.7	26.0	24.9	23.9	22.9	



Chimney Draft

Sq. Ft. of grate in furnace	Lbs. coal draft at 3 lb. rate	Inches draft req'd at 3 lb. rate	Lbs. coal draft at 5 lb. rate	Inches draft req'd at 5 lb. rate
1.22	0.1	.177	3.6	.151
1.97	0.8	.160		
2.64				
3.17	.195	.162		

OCTOBER, 1944



We're War-Geared Today . . . but planning for TOMORROW !

Until the final shot is fired and the war is won, you can bank on one thing: Lamneck Products, Inc., will continue to devote its entire engineering knowledge, skill and facilities to *Victory* manufacturing!

Yet war-minded as we are in our determination to contribute our bit, we're not for a minute overlooking the possibilities in the period that'll begin with Peace.

So bear this in mind: Our engineers and technicians are watching and studying all the new developments of Warm Air Heating and Air Conditioning equipment; and, if there be changes, you can rest assured LAMNECK will produce the proper materials to make

the new developments the very finest.

In the meantime, due to WPB releases of steel, we are able to supply jobbers with limited stocks of Lamneck Galvanized Furnace Pipe and Fittings. So keep Lamneck minded . . . and call on your jobber today!

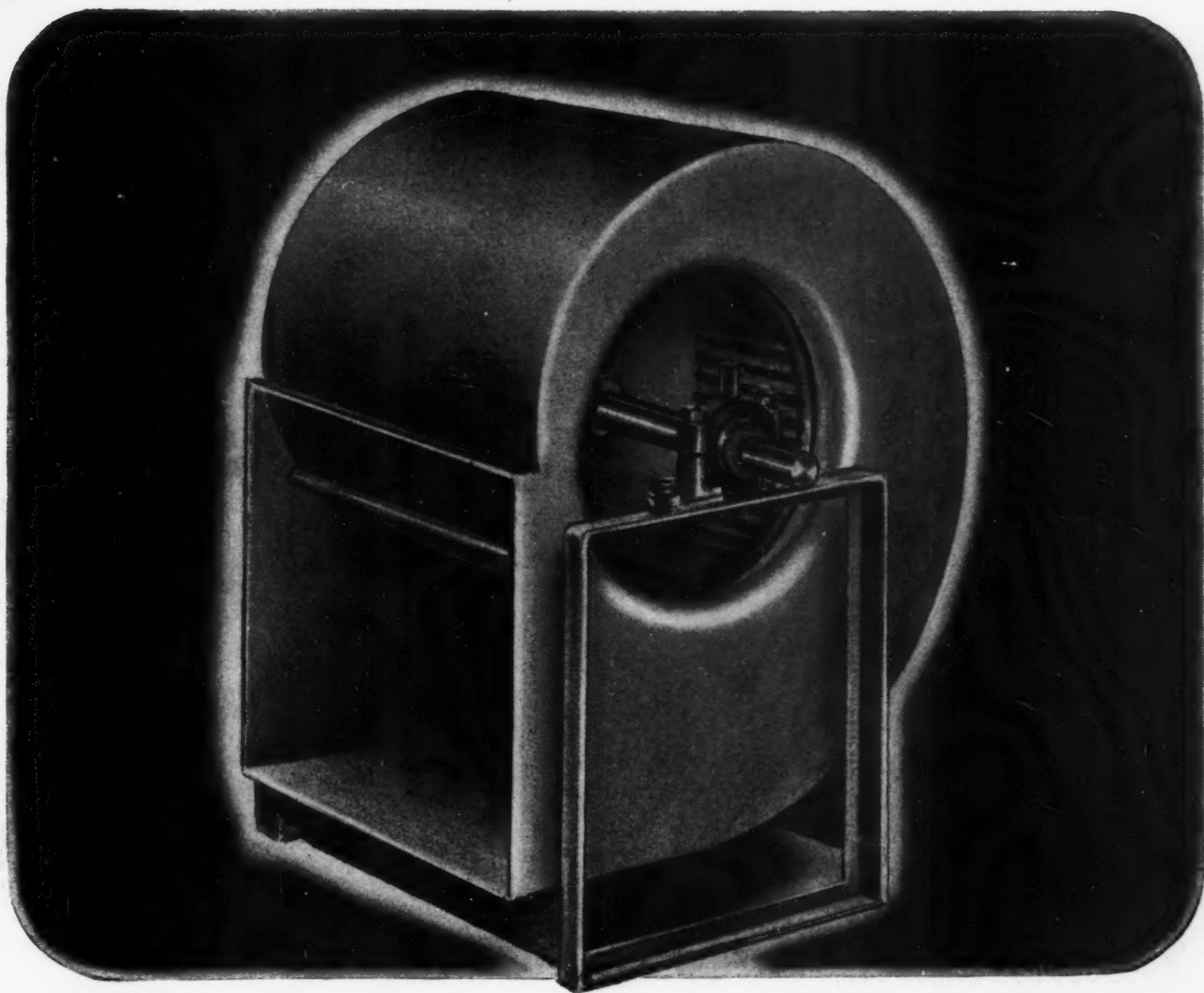
Important! For the name of your nearest Lamneck Jobber and the new Lamneck illustrated Price Sheet, send a postcard today!

LAMNECK PRODUCTS, INC.

Middletown, Ohio



**LAMNECK
PRODUCTS**



TODAY'S PRODUCTION...

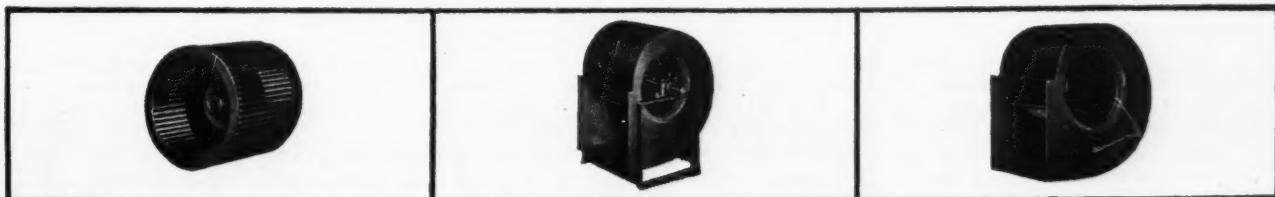


All America can look forward to products of superior quality when the war effort is no longer the major customer of U. S. industry. For in meeting the exacting requirements of the Army, Navy and Maritime Commission, men are building better. Here at USAIRCO, while taking in stride the many important tasks assigned to us, we still have capacity to produce your essential orders for blower wheels, scroll housings and complete double-inlet blower assemblies. Practically any application, standard or special requiring individual wheel, housing or complete assembly, will find the correct and properly designed unit available from USAIRCO.

UNITED STATES AIR CONDITIONING CORPORATION

NORTHWESTERN TERMINAL • MINNEAPOLIS, MINNESOTA

BLOWERS • COILS • COOLING SYSTEMS • EXHAUSTERS • FANS • HEATERS • WASHERS • WHEELS



AMERICAN ARTISAN

Covering All Activities in Residential Air Conditioning and Small Commercial Cooling, Warm Air Heating, Sheet Metal Contracting and Fabricating

WITH WHICH ARE MERGED

**FURNACES
SHEET METALS**

AND

**Warm-Air
Heating**

J. D. Wilder, Editor

A. A. Kennedy, Assistant Editor

Vol. 113, No. 10 **October, 1944** Founded 1880

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In This Issue

MOST of us thought, probably, that MPR-251 (the regulation which requires pricing service work at the March, 1942, level and furnishing OPA and the homeowner with proof that the job was priced no higher than March, 1942) was killed, dead, buried, forgotten—but lo and behold MPR-251 is going strong again. Some areas do not seem to pay much attention to MPR-251, but some other areas are giving it a real ride and pestering contractors while doing so.

Just in case your locality may spring to action on MPR-251 you should understand the order and know what you must do. It might also be a good idea to operate just as though every job of yours is watched. So to give you the jist of the "do's and don't's" we publish the report from Michigan's secretary to his association on page 42.

There are two little articles on post-war houses of interest—the one on page 50 which tells about the type and cost of house architects and builders believe will be bought and the "Miracle" house article on page 55. There's some good ideas in these articles for your post-war scrap book.

The studies showing how AA reader-dealers expect to sell heating equipment after the war continues on page 56 with two more studies—stokers and furnace blowers. (Oil burners and gas equipment appeared in the September issue.) The one fact which shines out like a headlight in these studies is that the complete unit (furnace, burner, blower, controls, filters, humidifier) is the unit dealers confidently expect to sell. But dealers will also offer conversion units so, post-war, dealers seem likely to be complete merchandisers of heating—the type of business they should have been a long time ago.

Member of Audit Bureau of Circulations—Member Associated Business Papers, Inc.

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SYNCHROMATIC

ACCEPTED
*By the Trade who waited long
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**SEE YOUR
JOBBER**

**HAVE YOUR
CUSTOMER
SAY —**

"I want this one!"



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then he thought to himself

"WHY WAIT 'TIL YOU'RE CORNERED?"

AT his recent reception in Washington, General DeGaulle and General Pershing were deploring the havoc of the war and hoping some good might result. DeGaulle remarked that perhaps Mahomet had something when he ventured the statement:

"Without war, the world would be in a condition of stagnation."

It is a sad commentary on human inertia that men must wait until the gun is jabbed in their ribs before they will stir themselves to great effort.

But it seems a fact that men usually wait for a crisis before they get bold and take hurried recourse to the best means for liberation.

Even today, some business men are waiting for the pointed guns of competition before taking action. And others . . .

"WHY WAIT 'TIL YOU'RE CORNERED?" *he says*

LOOK, GENERAL, how some are beating the gun of competition through recourse to the new Lincoln "Fleet-Welding" Technique:

★ ★ ★



GUN BEATER: "Fleet-Welding"

The best way to weld all types of joints . . . in plates . . . shapes . . . and sheets. Butt welding is being speeded as much as 350% . . . fillet welds as much as 140%.

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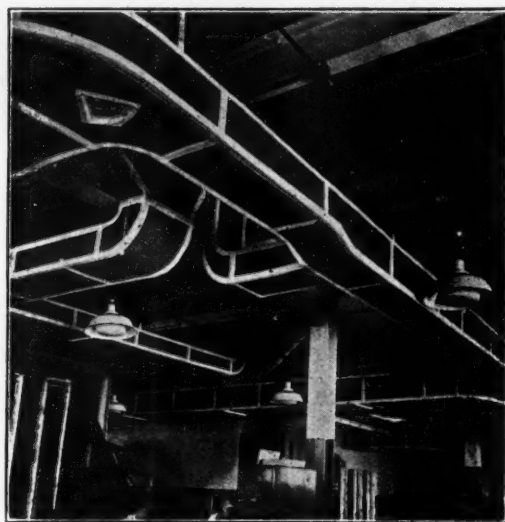
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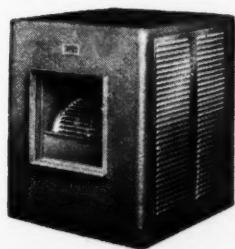
Write today for your copy of our valuable book No. 404 on correct duct insulation.

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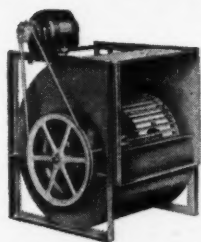
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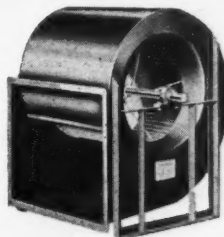
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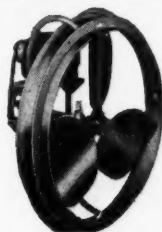
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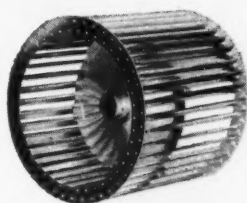
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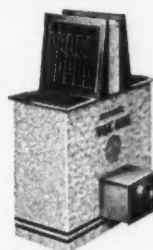
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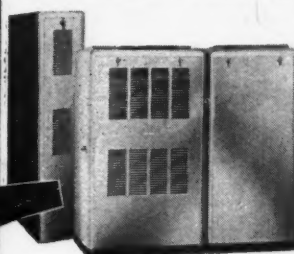
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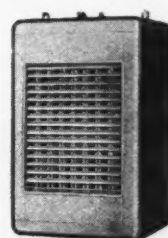
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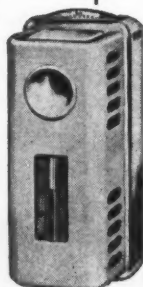
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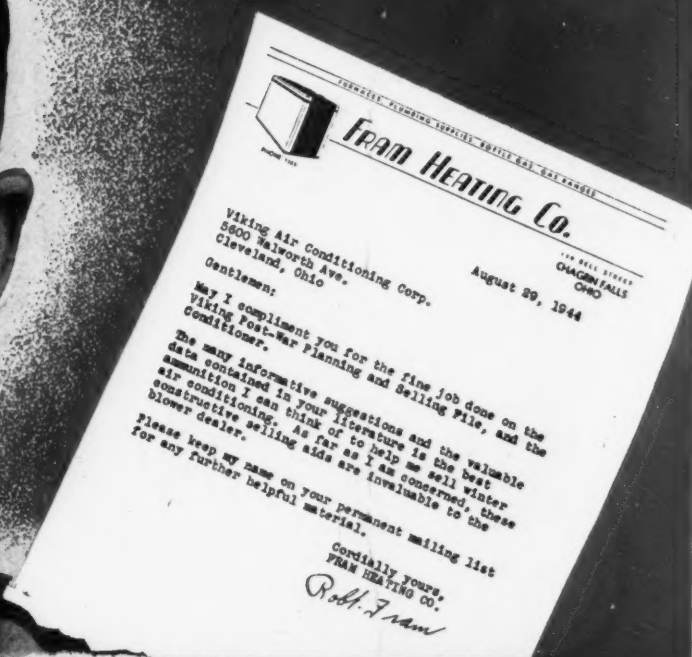
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Send Coupon Today

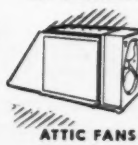


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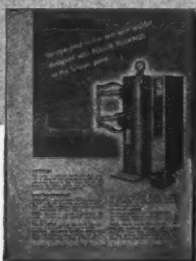
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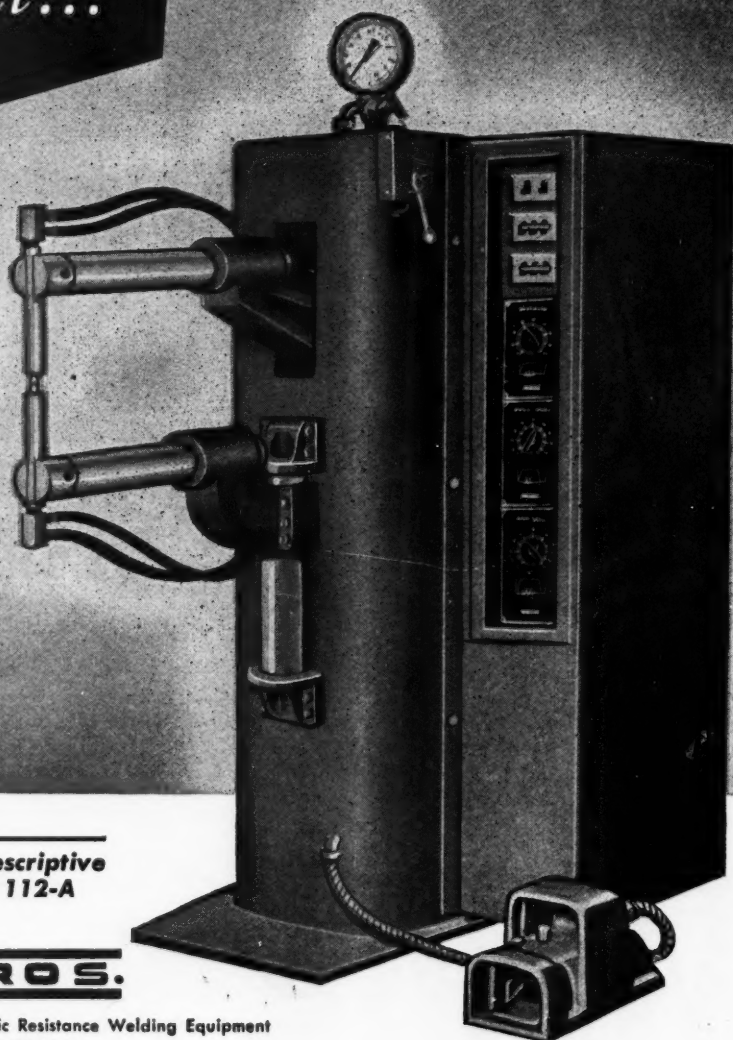
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Customers or CUSS-tomers?

● What you have to sell in heating equipment after war restrictions are lifted is going to determine whether you have *satisfied customers* or *irritated CUSS-tomers*.

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WAR BONDS!**



THE RYBOLT HEATER COMPANY

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SIX MORE *Sure Tricks* TO BACK UP YOUR *Ace!*

Play all your P-K cards to win extra fastening speed and savings

The Type "A" Parker-Kalon Sheet Metal Screw has been the "ace" fastening in up-and-coming sheet metal shops over 25 years. But unless you know when to play the *other* good cards in the P-K "deck", you'll miss out on some very desirable savings in time, man-hours, and costs.

You'll find the facts you need in the P-K "USERS' GUIDE". It shows which type of screw to use for assembling different kinds and thicknesses of materials, and how to do the job. It is file size, and fitted with a wall hanger. Write for a copy . . . it's free.

Free samples, too . . . just tell what you want to fasten and we'll send the correct type of screw. Parker-Kalon Corporation, 208 Varick St., New York 14, N. Y.



FOR SPEED AND EXTRA STRENGTH the P-K Hex Head Self-tapping Cap Screw was used here to fasten $\frac{1}{8}$ in. steel cover plates to the $\frac{3}{16}$ in. angle iron frame of a heat treating oven door. Since greater torque can be applied in driving them, and because they form their own tight-fitting threads as they are driven, P-K Hex Head Screws are widely used for heavy work.

PARKER-KALON *Quality-Controlled* Sheet Metal Screws

RUDY

Cleanliness Counts Most With Me!



EVEN FINER PRODUCTS FOR THE WORLD OF TOMORROW



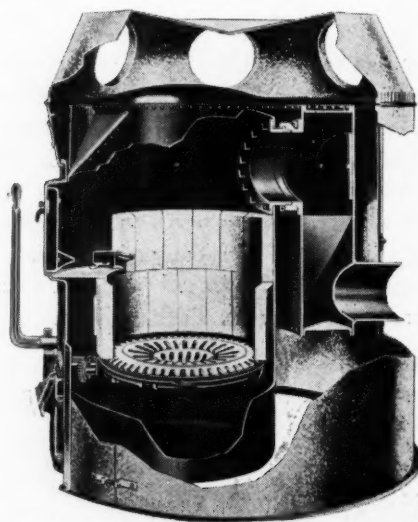
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She may not know the difference between a roller grate and a combustion chamber—your sales talk about such Rudy features as welded and riveted construction, long radiator wrap and high BTU output may mean nothing to Mrs. Housewife—but just watch her sales resistance melt when you point out Rudy's cleaner, more economical heat, smart designing and day-long "hands off" performance!

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AVAILABLE NOW!



Don't lose sales—write today for details on the new Rudy XM Series steel coal gravity furnaces. Genuine Rudy sturdiness and dependability—both welded and riveted, with 26 gauge galvanized steel casings and hoods. Ask about Rudy's profitable discount policy, too.

ADVENTURES OF

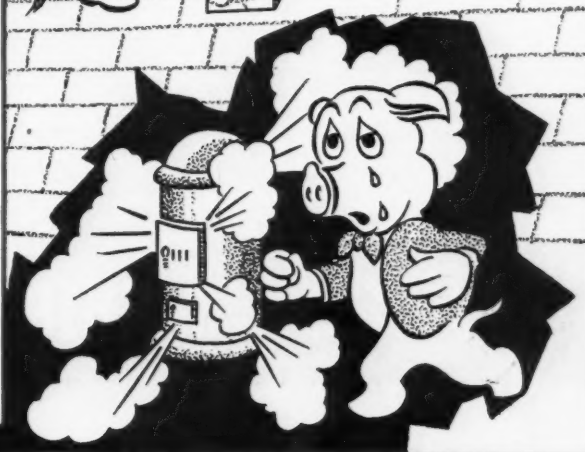
- ✓ A BIG BAD WOLF (FUEL WASTE)
- ✓ 3 LITTLE PIGS (CONSUMERS)
- ✓ and 2 DRAFT CONTROLS



This little pig used no draft control. And when the Big Bad Wolf (draft) huffed and puffed, his fuel went right up the chimney. The colder this little pig gets, the hotter a prospect he is for a FIELD.



This little pig picked the wrong draft control. When the Big Bad Wolf huffs—his stove smokes; when he puffs, the fire goes up the chimney. Here's another real prospect for a FIELD BAROMETRIC DRAFT CONTROL.



THE FIELD DRAFT CONTROL

GATE BALANCED
AT FACTORY

MADE OF HEAVY
MATERIAL

DOESN'T ODD
OR WARP

ROLLING TYPE
HINGE PIN

QUICKLY
RESPONSIVE

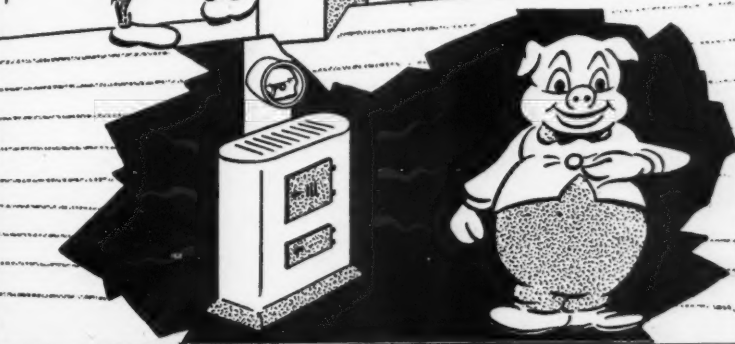
FREE SMOKE
PASSAGE

Available for all types of coal-, oil- and gas-fired heating units. The most accurate, long-lasting and trouble-free of all draft controls. Write us today for full details.

Field



This little pig was wise. He picked a FIELD DRAFT CONTROL. Now the Big Bad Wolf huffs and puffs, but this fire burns perfectly — with draft held to a perfect minimum. He won't be a prospect again for a long time — for the FIELD CONTROL wears and wears and wears.



CONTROL DIVISION, H. D. CONKEY • MENDOTA, ILL.



Let's leave "WISHING" to the Song Writers

SURE, all of us are wishing for quick victory . . . for the safe return of our fighting men.

At the same time, however, we realize that mere wishing won't speed the return of the things we most desire. We have to do something about it . . . so we use our talents and experience as best we can to secure the victory we seek.

And, wishing for a postwar pattern to meet our own business interests won't decide the outcome either.

One expert tells us . . . a million homes will be built in 194X, another says 750,000, a third crystal gazer claims 600,000.

Prefabrication will take the big

volume . . . most houses will be site constructed . . . so go the arguments.

What difference does it all make? *We have our job to do.*

For all of us in the heating business, that job is to capitalize *now* on the widespread enthusiasm for gas. In the face of fuel shortages, the steady supply of gas to both war plants and consumers has demonstrated its dependability and efficiency for every heating purpose. Now, while that superb wartime performance is still *fresh* in consumers' minds, is the time to *keep* them sold on the advantages of *Janitrol* gas heating equipment.

How to do this selling job?

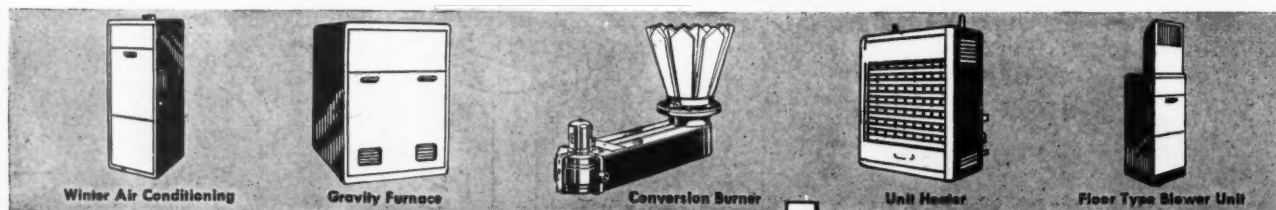
By giving the best service possible

under today's difficult conditions. And by using *Janitrol's* complete advertising and sales promotion service to let your prospects know that you will be ready with the *best gas equipment available*.

So, let the others wonder about the future, as we in the *heating industry* determine our progress by working and not wishing for it.

A helpful guide: Many dealers have found the *Janitrol* "Sales Preparedness Program" to be valuable—particularly as a check and guide for their own postwar merchandising activities. Write for your complimentary copy and suggestions of how to make your company headquarters for heating in the months ahead.

SURFACE COMBUSTION • TOLEDO 1, OHIO



GAS-FIRED

JANITROL
HEATING EQUIPMENT

AEROFIN

Heat Exchange Surface

A SIZE and TYPE for every REQUIREMENT

STANDARDIZED COILS

For Heating, Cooling and Air-conditioning Systems.

SPECIAL DESIGNS

**For Unit Manufacturers, Machine Designers, and
Heat Exchange Applications.**

***Aerofin Fan System Heat Exchange Surface* is the
result of years of research by specialists intent on
making the best equipment to meet the requirements
of engineers and architects.**

**When efficiency and durability are called for in
your specifications, *Aerofin* will take care of your needs.**

**Consult any of the district offices listed
below or get in touch with the home office for
full information.**

AEROFIN CORPORATION

**410 SOUTH GEDDES STREET
SYRACUSE, N. Y.**

Chicago • Detroit • Cleveland • New York • Philadelphia • Dallas • Toronto

AEROFIN
is sold only by
Manufacturers
of Nationally
Advertised
Fan System
Apparatus.
List upon Request

**TOMORROW'S HOME
WILL BE A BETTER HOME
IF EQUIPPED WITH
ROUND OAK PRODUCTS**



1871-1944

ROUND OAK'S

73rd Anniversary



BUY ANOTHER WAR BOND TODAY!

ROUND OAK

HEATING EQUIPMENT

KITCHEN APPLIANCES

ROUND OAK COMPANY • DOWAGIAC, MICHIGAN

Engineered for YOU

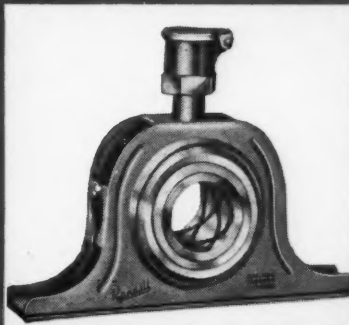
FOR more than a third of a century Randall engineering research has included the most thorough study of air handling equipment.

The result is the Randall *engineered-for-you* Pillow Blocks which are used on more air handling units than any other similar equipment. Randall knows how to build bearings that stand up under heavy duty requirements, without noise and with assurance of long-lasting service. They are self-aligning and self-lubricating.

Specify Randall Pillow Blocks . . . get rugged construction . . . get bearing operation that is especially engineered for your requirements. Write for Randall Catalog No. 42 now!

RANDALL
GRAPHITE
PRODUCTS CORPORATION
DEPT. 310
609 W. LAKE ST., CHICAGO 6, ILL.

Randall PILLOW BLOCKS

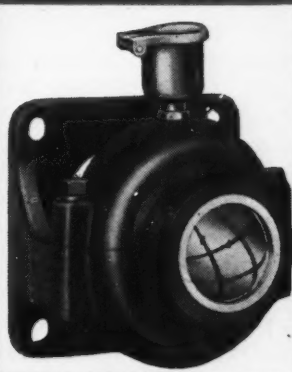
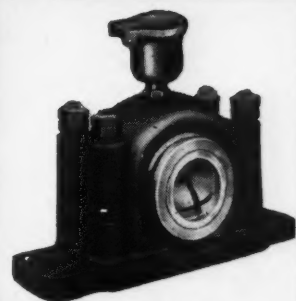


ONE-PIECE STEEL HOUSING PILLOW BLOCK

This low cost bearing is the most popular in the industry. Can be supplied with vibration eliminators.

UNIVERSAL PILLOW BLOCK

Designed to meet the most exacting demands of engineers, the Universal operates satisfactorily in any position under severest conditions.



FLANGE PILLOW BLOCK

The rugged construction of the Flange provides ample safety factor for the most severe side mount bearing applications.



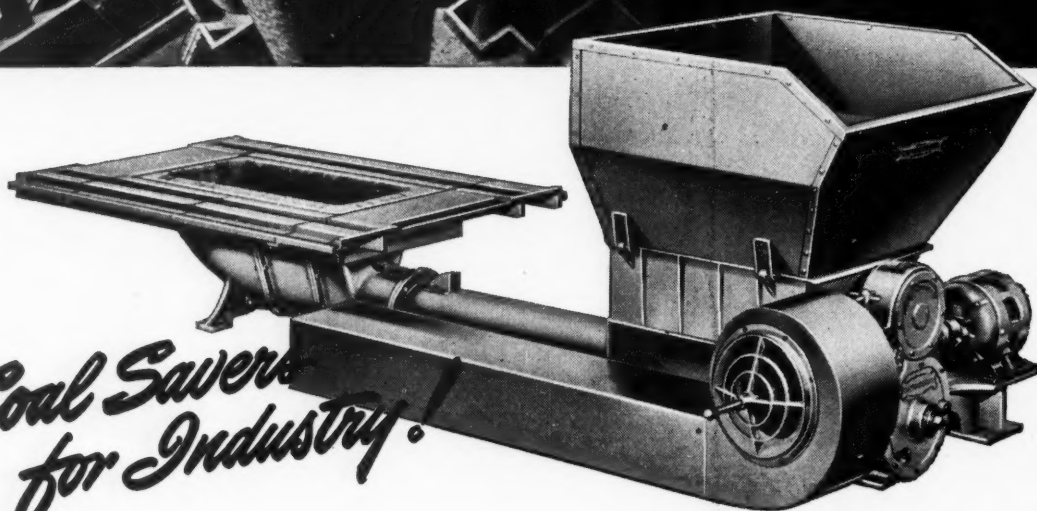
Cut-away sections of two of many types of Randall Graphite Bronze Bearings. Send for complete Graphite Bronze Bearing catalog, No. GB-43.



Now's the Time to Sell— Combustioneer

COMMERCIAL
AUTOMATIC COAL STOKERS

*Coal Savers
for Industry!*



In your city this very minute there are hundreds of large and small industrial plants, schools, churches, apartments, office buildings, theaters, stores, greenhouses—and commercial establishments of every type which simply must save coal and labor next winter.

With Combustioneer's Franchise you can now sell users of 25 tons a year or more, for immediate installation, a Commercial Model Combustioneer. It will cut furnace tending labor by one-third or more—use less fuel, and reduce fuel costs by 20 to 30%, as proved by thousands of installations.

Right now you can cash in on the stoker boom—sell Commercial Model Combustioners at substantial profits, and lay the groundwork for extra, continuing profits with Combustioneer's famed line of household stokers, to be available as soon as Government restrictions are lifted.

Combustioneer is adaptable to practically any boiler or furnace. It is the complete and outstanding system for automatically feeding and burning coal by the famed forced-draft under-feed method of firing—proved over the years to give the greatest possible amount of heat, hot water, steam, or power per pound of low-priced coal burned.

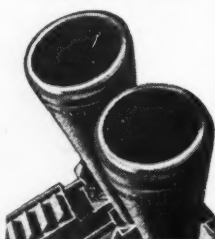
A PIONEER PRECISION PRODUCT WITH OUTSTANDING FEATURES

Combustioneer has everything to get you immediate sales. It is backed by 28 years of Pioneer Design and Engineering Research in the precision

manufacture of automatic coal-burning equipment. Outstanding features, including the famed Breathing Fuel Bed, are internationally recognized.

From laboratory control to final test, Combustioneer is completely built in a modern plant by men, machinery and facilities exclusively devoted to the manufacture of top quality precision products.

There never will be a better time to get immediate sales while building for the future with Combustioneer's franchise. Write or wire for all the facts about the nationally advertised Combustioneer today.



Combustioneer

AUTOMATIC COAL STOKER

FOR HOMES, APARTMENTS AND FACTORIES

A Product of the Steel Products Engineering Company, Springfield, O.



Your Post-War Plans Are Already Made

. . . When it comes to Humidifier Water Control



WE never started on a job that looked easier, or proved tougher, than the making of a dependable float valve for the humidifier pan of warm air furnaces.

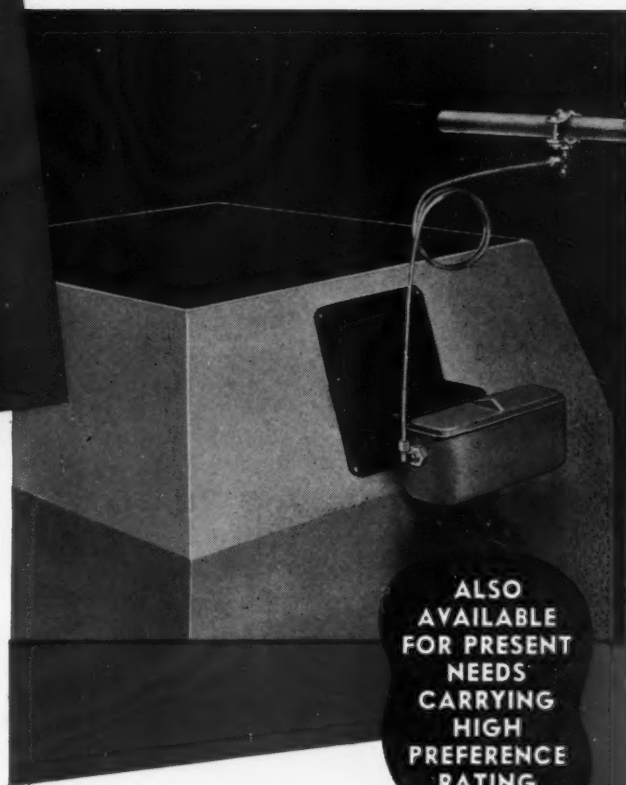
When we brought out the McDonnell Humidifier Water Control back in 1939, we thought we had the problem completely licked. As a matter of fact we *did* make a big improvement over the old type of float valve — the kind that slowly cracks open when the float drops and simply dribbles water into the pan. This seeping or dribbling action wasn't sufficient to keep the valve orifice clear and prevent lime or dirt from plugging up the valve. So the basic problem was to design a full-flow valve.

Our "snap action" valve accomplished this. It was designed to snap wide open whenever the float dropped a quarter-inch. The full stream sluiced out the orifice — kept the valve in good operating condition. But while it represented a big advance over the old way, we frankly admit that there was still room for improvement.

We like a tough problem of this kind; so we have sailed into it in dead earnest. The period when production was practically stopped proved an excellent opportunity for intensive research, field studies, and re-designing. As a result, the "snap action" has now been brought to a remarkable stage of perfection; a new type of float with better action has been developed; many fine-spun changes have been made that truly achieve a new standard.

McDONNELL & MILLER

1318 Wrigley Building, Chicago 11, Illinois



ALSO
AVAILABLE
FOR PRESENT
NEEDS
CARRYING
HIGH
PREFERENCE
RATING



No. 517, consisting of No. 417 Float Valve with rugged die cast float chamber and cover.



No. 417 Snap Action Float Valve for installation in humidifier pan or float chamber.



THIS FAMILIAR MARK MEANS

Uniformly Fast and Easy Workability—Uniformly High Rust-Resistance

This trademark has been a guarantee of fast, dependable workability and of superior rust-resistance—in Toncan Iron Sheets for 35 years.

The uniformly high ductility of Toncan Iron comes from its basic metal—a refined, open hearth iron of exceptional purity. Its freedom from hard spots and its non-cracking qualities mean more speed and better workmanship in fabrication. And besides, this highly refined iron has fewer impurities that invite corrosion.

But that's only the beginning of Toncan Iron's high rust-resistance. Toncan is an *alloyed* iron—containing *twice as much copper* as copper-bearing steel—and *molybdenum* which improves the metal structure and makes the copper more effective. So, remember, this trademark also

stands for the highest rust-resistance among all ferrous materials in its price class.

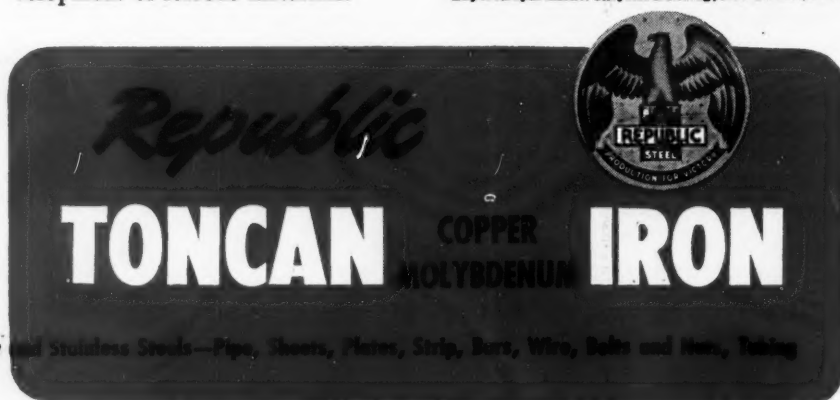
It is Toncan's *extra* rust-resistance that prevents us from making it now. Copper and molybdenum are strategic war materials needed for tough fighting machines. But when war restrictions are lifted, a *better* Toncan Iron will return to bolster your business. That's a pledge that is coming from our war experience in the development of ferrous materials.

Watch for the reappearance of this familiar mark of sheet metal superiority. Meanwhile, there's a bookful of facts on "How Toncan Iron makes Money for Sheet Metal Contractors and Fabricators." Ask your Republic Toncan Iron Distributor for them, or write us.

REPUBLIC STEEL CORPORATION

GENERAL OFFICES • CLEVELAND 1, OHIO

Berger Manufacturing Division • Culvert Division
Niles Steel Products Division • Steel and Tubes Division
Union Drawn Steel Division • Truscon Steel Company
Export Department: Chrysler Building, New York 17, N.Y.



Other Republic Products include Carbon, Alloy and Stainless Steels—Pipe, Sheets, Plates, Strip, Bars, Wire, Bolts and Nuts, Tubing

To speed sales and save fuel

specify DRAFTENDER controls

QUICK sales are a natural with PENN Draftenders.

In addition to their fuel-saving virtues, they enable owners of *hand-fired* heating plants to enjoy the thermostatic control and greater heating comfort found in *automatic* heating systems.

On any hand-fired plant—warm air, hot water or steam—Draftender automatically regulates the drafts to provide more and better heat with less fuel. Not only does this easy-to-install damper control conserve fuel, but it puts an end to the alternate chilling and overheating common with hand-fired jobs.

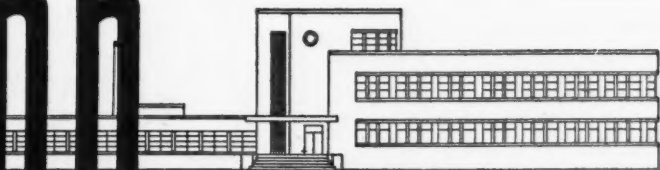
PENN Draftender control sets include Temtrol,

the heat anticipating thermostat. This "auxiliary" heat-actuated thermostat actually "senses" temperature changes before they occur, prevents over-runs and holds the room temperature closely at desired setting to provide true heating comfort.

Remember: PENN Draftender Control sets, including Temtrol, require *no consumer priorities*. The supply is limited . . . so order *today* from your local wholesaler. Further information is available without cost from *Penn Electric Switch Co., Goshen, Ind.* Export Division 13 E. 40th Street, New York 16, U. S. A. In Canada: Powerlite Devices, Ltd., Toronto, Ont.



PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

TOOLS and MACHINERY ARE WEAPONS...

*Treat 'em
right!*



The tools and machinery in your shop are worth every care you can give them. For the longer they serve you, the more steel and manpower will be made available for the tools of war that are needed on the fighting fronts.

There are three simple, yet highly important, things you can do to prolong the life of your present equipment: regularly oil or grease all moving parts; sharpen the cutting edges when they become dulled or accidentally nicked; use your tools and machinery only within the limits of their rated capacities. The careful observance of these suggestions will not only minimize repairs and replacements, but will also enable your

men to do better work, faster, because the equipment will be in better working order.

When any of your shop tools do reach the irreparable stage or you need additional equipment because of increased business, OSBORN will gladly work with you in obtaining the necessary items. This has been an important part of our service to the sheet metal trade for many years.

THE J. M. & L. A.
OSBORN Co
CLEVELAND, OHIO
BUFFALO • CINCINNATI • DETROIT
Manufacturers—Distributors of Metals and Metal Products

A DEPENDABLE SOURCE OF SUPPLY FOR 85 YEARS

Big Postwar Opportunities

for Sales-Minded Heating Dealers

MEN who are given credit for knowing what they are talking about, say that home building on a vast scale is number one on the list of postwar projects most urgently needed. Some of these practical individuals put the number as high as *900,000 individual homes to be built in the early years following the war.

How Dealers Can Profit

Every one of these thousands of homes, except in a few favored localities, will require a heating plant. And you will want to tie up with a long-established, well-rated, nationally-known manufacturer who has a reputation for quality products and fair business policy. Of course, no long-established oil burner manufacturer like Fluid Heat is promising home heating miracles by sunset on V-Day. What Fluid Heat does promise is this: Fluid Heat's valuable wartime experience in the design and construction of aircraft and truck heaters, together with its sixteen years of pioneering

in the development and manufacture of automatic combustion and heat transfer equipment, will be used to make Fluid Heat domestic heaters an even better "buy" than in the past—and an even more profitable line for dealers to handle.

Get in on the Ground Floor

If you are interested in a source of sure-selling heaters, put out by a long-established leader in the heating field, contact Fluid Heat. We will make you no extravagant promises, nor will we put you under any obligation. What we will do is keep you in mind in regard to our postwar distribution—and keep you informed on developments as they come along. Why not be among the first in your vicinity to file your name with Fluid Heat? It's going to be, even more than in the past, a good line to handle, and you lose nothing by stepping in on the ground floor. Write today to Fluid Heat Division, Anchor Post Fence Company, 6720 Eastern Ave., Baltimore 24, Maryland.

*Producers' Council estimate of the annual postwar residential market.



"World's Economy Champion"

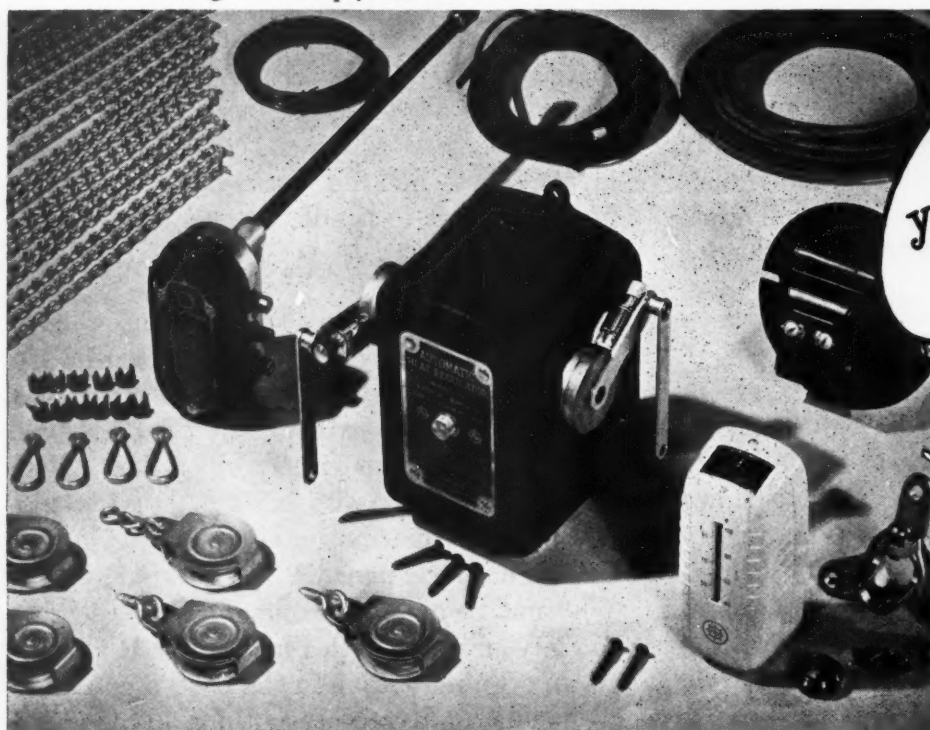
A PRODUCT OF THE ANCHOR POST FENCE COMPANY, BALTIMORE, MD.
ESTABLISHED 1892



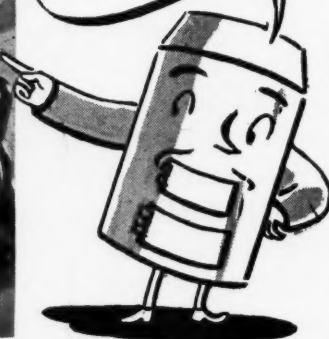
**Fuel Savings
depend on YOU!**

America's threatened coal shortage is serious! Families must find some way to make up for 10% to 25% less coal.

As the heating expert in your community *you* can help keep these families warm on less coal. Install A-P Automatic Furnace Controls on every furnace. Tell every furnace user of the danger of coal shortage, and the vital benefits of adding automatic controls — elimination of overheating, steadier room temperature, most efficient furnace operation — adding up to fuel savings that will pay their cost.



**You can help
your customers
keep warm on
10% to 25%
LESS COAL...**



Install this A-P AUTOMATIC FURNACE REGULATOR SET

A sales opportunity that is a PATRIOTIC NECESSITY today . . .

- Fuel saving is so important that the production of Automatic Furnace Control Sets is permitted to help solve the shortage. They're available for all types of heating systems, warm air, steam or hot water. Inexpensive, easy to install, they're
- precision built for years of trouble-free service.
- Write today for details and prices on A-P Automatic Furnace Regulator Sets — and for ready sales helps, display cards and mailing folders.

**Fuel-Saving
Starts With
CONTROL**

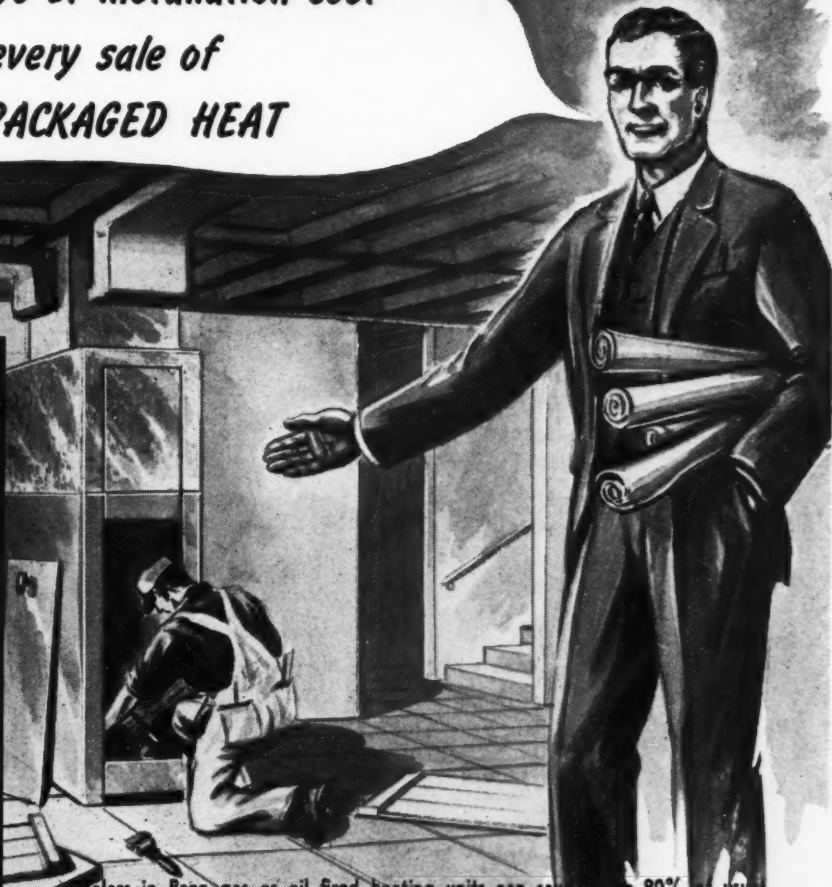
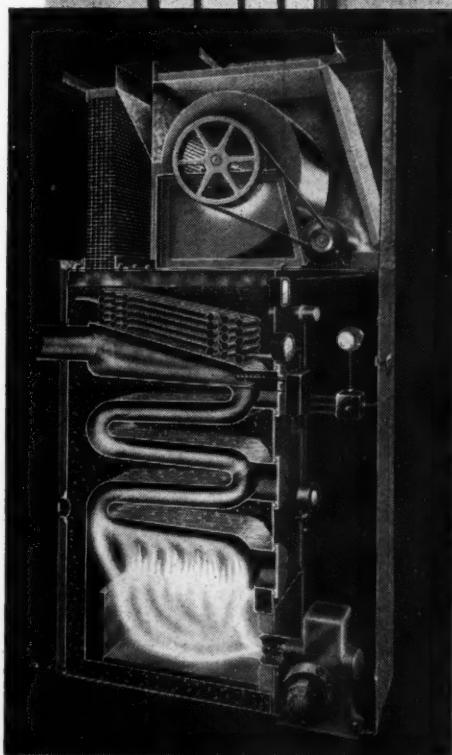
AUTOMATIC PRODUCTS COMPANY

2470 North Thirty-Second Street, Milwaukee 10, Wisconsin



DEPENDABLE FUEL CONTROLS

*I'm saving 90% of installation cost
on every sale of
PENN PACKAGED HEAT*



Dealers in Penn gas or oil fired heating units can save up to 90% of usual installation expense . . . because every Penn unit is a **factory-protected package**. They're shipped from the factory in one crate ready to pick up, set down, and plug in. That's how Penn saves you time and skilled labor, eliminates cluttered parts inventories, avoids assembly headaches. Heat engineering is done by Penn at the factory, not by you in the basement. Think what this means in terms of consumer sales appeal, and net dealer profit! To learn more, write for THE STORY OF PENN PACKAGED HEAT. 25 Fruitville Road, Lancaster, Pa.

PENN HYDRO-AIRE UNITS

OIL OR GAS* BURNER

Cut-away section of Hydro-Aire (split system) shows how all parts and controls are built-in at the factory.

Cold, dusty air is drawn in through two large filters, cleaned and humidified. Steam heats the completely shielded copper radiator through which all air is blown directly into ducts.

Every heated boiler part is surrounded by heavily insulated water; no wasted heat. Long backward and forward fire travel ups efficiency.

Hydro-Aire makes possible combining warm air with steam or hot water radiation in kitchen or bathroom to avoid odors. Year-round hot water cost compares favorably with other methods, eliminates extra basement equipment.

Size	B.T.U. at Bonnet	C.F.M.	Max. Allowed Coils		Dimensions Overall Inches		
			Tank Gal.	Tankless GPM	L	W	H
S-70	70,000	900	66	5	40	21	67
S-90	90,000	1,000	66	5	40	21	67
S-100	100,000	1,400	66	5	40	21	67
S-120	120,000	1,400	66	5	40	21	67

BOILER BURNER UNITS
AIR CONDITIONER UNITS

Packaged by **PENN**

* Roberts-Gordon A.G.A.
Approved Burner

PENNGUN WATER HEATERS
HYDRO-AIRE (Split System)

PENN BOILER and BURNER MANUFACTURING CORP.

LANCASTER, PENNSYLVANIA

Let us help you *Deliver the Goods!*

UNITED STATES STEEL SUPPLY COMPANY

9 Conveniently Located Warehouses

CHICAGO (90), 1319 Wabansia Ave., P. O. Box MM
Teletype CG. 605 BRUnswick 2000

BALTIMORE (3), Bush & Wicomico Sts., P. O. Box 2036
Teletype BA. 183 GILmore 3100

BOSTON (34), 176 Lincoln St., Allston, P. O. Box 42
Teletype BRTN. 10 STAdium 9400

CLEVELAND (14), 1394 E. 39th St.
Teletype CV. 153 HEnderson 5750

MILWAUKEE (1), 4027 West Scott St., P. O. Box 2045
Teletype MI. 587 MITchell 7500

NEWARK (1), N.J., Foot of Bessemer St., P. O. Box 475
Teletype NK. 74 BIGelow 3-5920
REctor 2-6560 - BErgen 3-1614

PITTSBURGH (12), 1281 Reedsdale St., N. S.
Teletype PB. 475 CEdar 7780

ST. LOUIS (3), 21st & Gratiot Sts., P. O. Box 27
Teletype SL. 384 MAIn 5235

TWIN CITY, 2545 University Ave., St. Paul (4), Minn.
Teletype STP. 154 NEstor 2821

OUR definite progress towards victory has been made possible by all hands working together and delivering materials to our fighting men. For the bravest men in the world can't fight without weapons and supplies.

Perhaps you need help in turning out war goods—steel, steel products, tools and machinery; if so, get in touch with our nearest warehouse. We have nine of them, located in the big production centers and our men will break their backs to get goods to you in a hurry.

We have large stocks, even today, including the National Emergency Alloy Steels which have proved so successful. Try us—we have helped speed many a war order. Your call will receive quick action. Write, wire or phone our nearest warehouse.

WANT AIRCRAFT STEELS? Our Chicago Warehouse is designated by the War Production Board as a warehouse to distribute the following aircraft steels. For use in airplanes and available at our Chicago Warehouse only.

WD-X-4130 SHEETS

Open Hearth, Pickled and Oiled to Spec. AN-QQ-S-685. All gauges from .016 to .50, sheets 18" x 72".

NE-8630 SHEETS

Open Hearth, Pickled and Oiled to Spec. AN-S-12. All gauges .016 to .50, sheets 18" x 72".

STAINLESS SHEETS

Spec. AN-QQ-S-772.
Spec. AN-QQ-S-757.

STAINLESS STEEL BARS

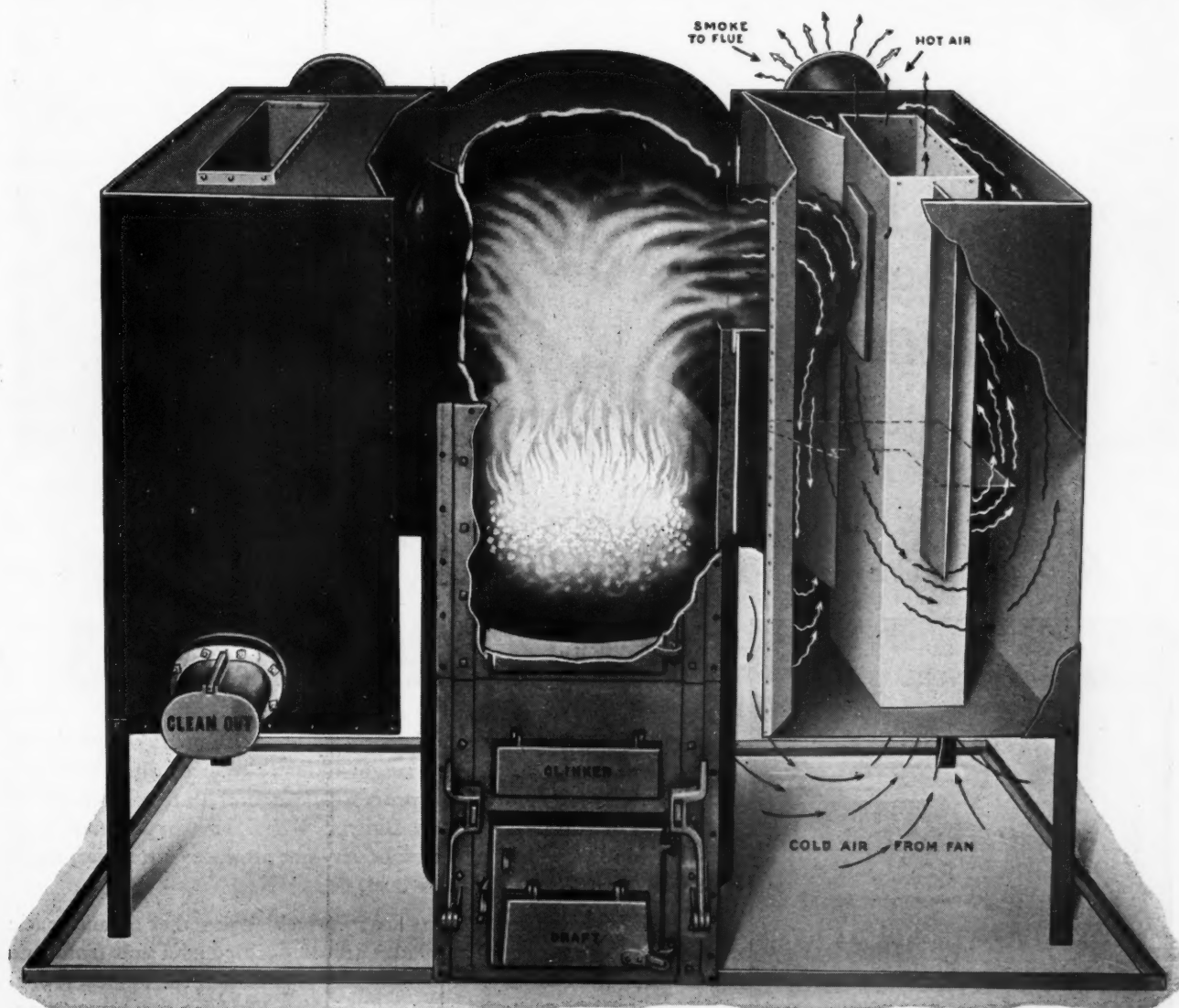
Spec. AN-QQ-S-771.

WELDING ELECTRODES—ALL TYPES—These are available through all our warehouses.



UNITED STATES STEEL

PEERLESS *Commander* Heavy-Duty FURNACE



SPECIFICATIONS — PEERLESS *Commander* No. 750 DR

Diameter Drum (obround)	Height of Drum	Height of Radiator	Grate Area Sq. In. Sq. Ft.	Heating Surface Sq. In. Sq. Ft.	Ratio Heating Surface to Grate Area	Height to Bottom of Smoke Pipe Collar	Diameter Smoke Pipe	Casing Size Height	Shipping Weight—Lbs. Less Casing With Casing
31½"x48"	66"	46"	1048 7.28	30,959 215	29.55	49½"	14"	91"x58" 75"	3340 3855
FORCED AIR RATINGS									
BTU-Coal	Firing Rate Lbs. Per Sq. Ft. Grate Surface		BTU		BTU-Coal	Firing Rate Lbs. Per Sq. Ft. Grate Surface		BTU	
11,500	7.5		486,000		12,500	7.5		528,000	
	10.0		698,000			10.0		759,000	
12,000	7.5		507,000		13,000	7.5		549,000	
	10.0		728,000			10.0		789,000	

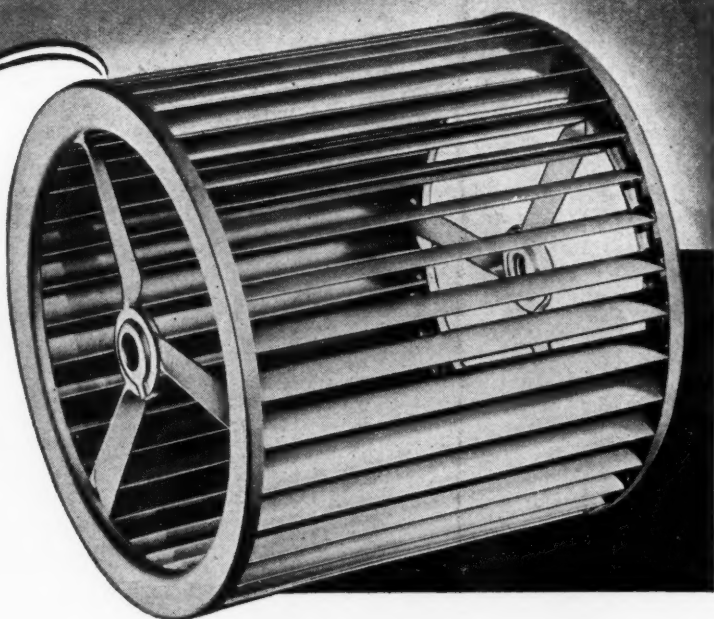
Specifications on other Peerless Heavy Duty furnaces on request.

Wire or Write for Descriptive Literature and Complete Information on other sizes of Peerless Warm Air Furnaces.

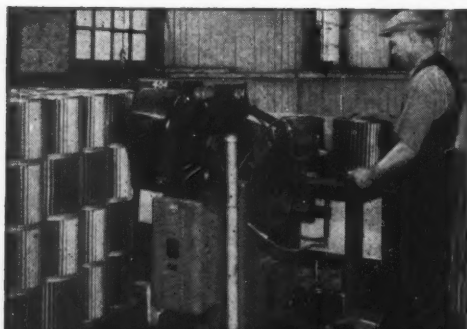
THE PEERLESS FOUNDRY COMPANY, Indianapolis, Ind.

Pioneers in Warm Air Heating for Over a Third of a Century

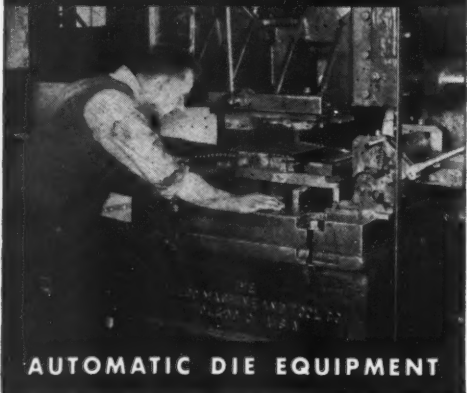
Less Steel
★
Less Labor
★
Lower Cost



with **MORRISON** *Airstream* **BLOWER WHEELS**



AUTOMATIC SPOT WELDER



AUTOMATIC DIE EQUIPMENT

HOW YOU SAVE

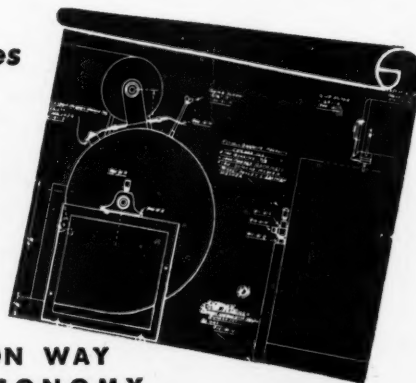
You save through cost reductions made possible by a design that requires less steel as well as through simplified and automatic methods which reduce man hours. The resulting economies mean greater profits and increased competitive advantages to you.

Modern production methods with their requirements of speed and conservation of metal have taught industry to streamline and simplify many manufacturing processes. An outstanding example is the MORRISON *Airstream* Blower Wheel whose patented construction saves metal and man hours—yet produces a sturdier, more rigid and better balanced wheel.

Four major die-formed parts are spot welded together on automatic welding equipment. The blades are die-formed as a unit from one continuous sheet of steel, eliminating chance of loose blades, reducing vibration to a minimum and insuring life-long quiet operation.

Build Your Own Blower Assemblies

You can save money by building blower assemblies in your own shop. We'll furnish the *Airstream* Blower Wheels and proper scroll design to meet your requirements, together with complete detail working drawing. If desired, one of our engineers will call.

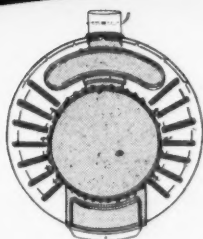


**THE MODERN MORRISON WAY
MEANS GREATER ECONOMY**

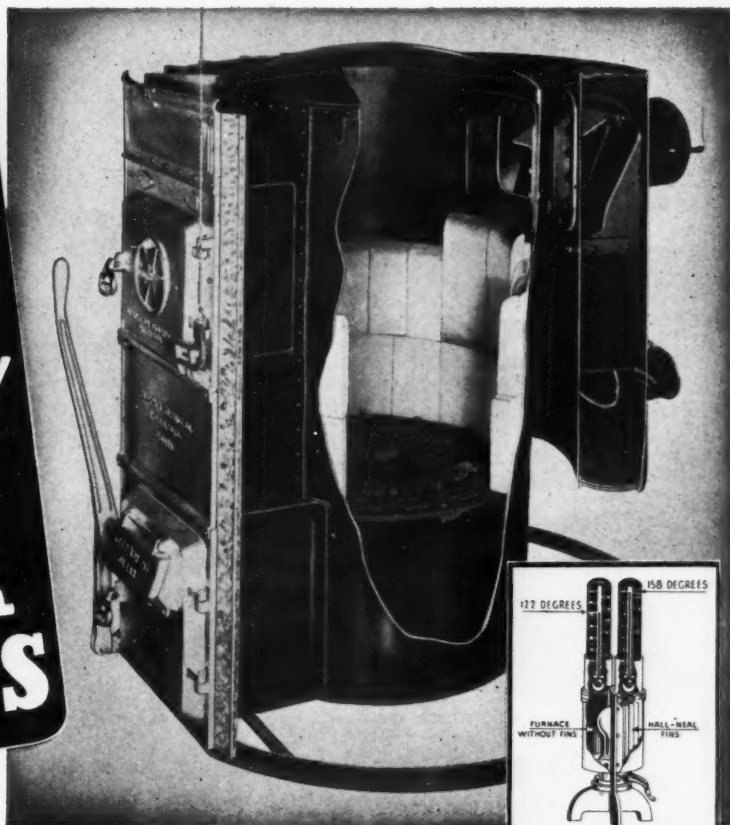
MORRISON PRODUCTS, INC.

**EAST 168TH & WATERLOO ROAD
CLEVELAND, OHIO**

8 Great Advantages Which Help YOU Sell VICTOR FURNACES



1. Air passing through Victor "Fin" equipped furnaces is all within 2½" of a hot surface. No other gravity design accomplishes this.
2. "FINS" warm the air to much higher temperatures, causing it to travel much faster.
3. Greatly increased air circulation results from this faster speed.
4. Warmer air, traveling faster, reaches ALL registers. House is warmed more quickly.
5. "FINS" pull heat from combustion dome, intercept the warming air, flow it up to the pipes away from furnace casing. Cooler casing—less heat loss.
6. "FIN" radiation effectively increases heating efficiency of furnace.
7. More heat from less fuel means fewer ashes—less money for coal.
8. Victor "FIN" Furnaces have the same heating surfaces as any first class furnace PLUS many additional square feet of "FIN" radiation.



Exclusive Features Give You MORE SALES—MORE PROFITS!

The **VICTOR** dealer has, in addition to the exclusive Hail-Neal "FINS", many other sales closing features. The patented, heavy, one-piece **BASE RING** makes a level, rigid foundation and supports furnace 1½" above floor. This forms an insulating and ventilating space preventing heat loss through floor. The *De Luxe* radiator bottom is of double thickness, and three-flue design assures long, effective fire travel. *Automatic Damper Control* is another patented feature which automatically provides direct draft when feed door is opened. Built of heavy boiler plate steel, Victor Furnaces are *cold riveted* and *heavily welded*—insuring a lifetime of service, free from leakage of gas or smoke. It is easier to sell a high grade furnace and you keep more of your profit from a trouble-free installation after it's in operation. Hail-Neal Victor Furnaces have led in quality and craftsmanship for over half a century. Write us today for a dealer proposition.

FREE — Table of Chimney Sizes

Write Now

for convenient, practical table of recommended chimney sizes and heights for all sizes of furnaces.

Address: Hail-Neal Furnace Co.
Engineering Dept.

HALL-NEAL FURNACE CO.

1326 N. Capitol Ave.

Indianapolis 7, Indiana

It Will Come Unexpectedly..Like a Thief in the Night

Nobody knows when V-Day will arrive but it is on the way. We suspect that it may be much nearer than we think.

This belief packs a solemn load of responsibility for all of us . . . manufacturers, workers, distributors, dealers and salesmen. Everyone on the home defense line must face up to this responsibility . . . be ready for it. There must be no gaps through unemployment.

But, you may say, "We are still up to our necks in war work. What can *we* do now when there's so much we don't know?"

The answer is that there's nothing to prevent any of us using everything that's *above* our necks to plan and prepare—to make ourselves ready for V-Day. Indeed we should be past the mere thinking stage and be prepared for action.

Some needs of the future are certain and definite. *Don't wait to see how the world is going to change.* You know already that it's not going to be vastly different. The facts of life will remain unchanged. People will still have to be housed. Houses will have to be heated, warm water supplied. The elements will "rage furiously" at times. There won't be any plastic substitute for heat! Opportunity will crowd you—aplenty. Make sure now that it will find you ready!

The man who waits to see what chance may offer may find himself without a chance. The urge to do something *now* shouldn't be stifled. It's time to act.

Find out what line you are most likely to succeed with. Remember, people will want *oil heating* for its cleanness, convenience and automatic value. But many will want to burn *gas* or *coal*. So a man really in the *heating* business should be able to care for any need.

That's a good place to start thinking about Toridheet. Don't forget that Toridheet has an unmatched reputation for low service cost, a complete line, plus plans that include you and production facilities to supply tomorrow's needs.



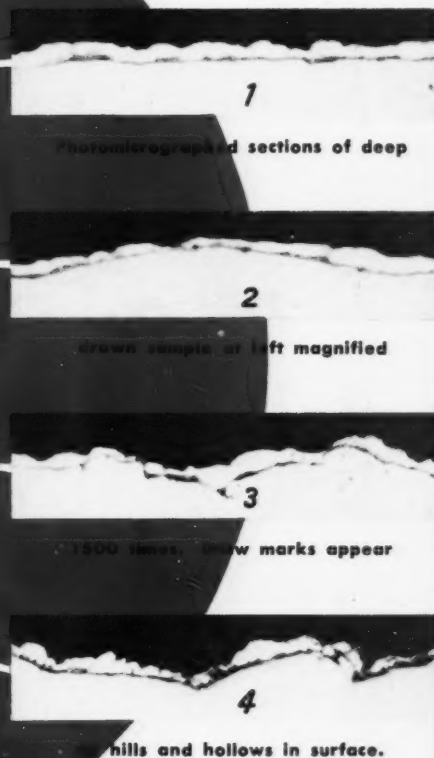
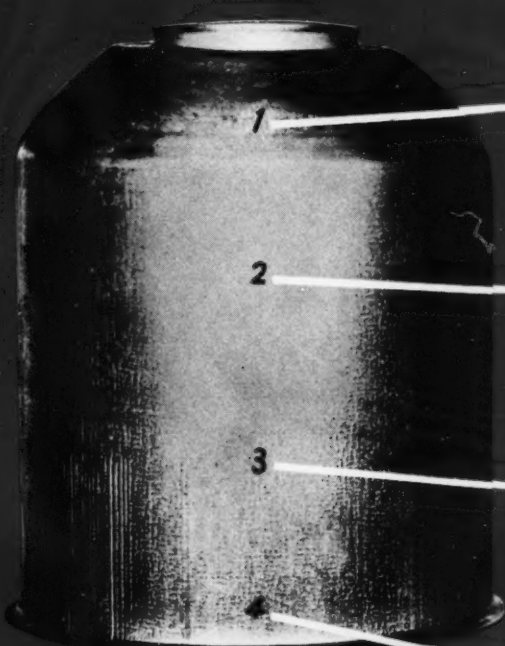
Write us now. Make sure V-Day won't find you unprepared.

CLEVELAND STEEL PRODUCTS CORP.

TORIDHEET DIVISION • CLEVELAND 2, OHIO

Oil Burners • Air Conditioning Units • Oil-Burner Boilers
Coal and Gas Furnaces • Water Heaters

SUBSEQUENT COATING SELDOM REQUIRED



Weirzin

ELECTROLYTIC

ZINC COATED SHEET
AND STRIP

AFTER THIS DEEP DRAW . . .
it withstood 25 hours of the
standard 20% salt spray test

Yes, Weirzin retains its corrosion resistance under severe fabrication. For instance, the unretouched photomicrographed cross sections of this deep drawn oiler body enlarged 1500 times clearly show that—at the greatest depth of draw (position 4) the coating is just

as thick and intact as at the base of the draw (position 1) . . . The wavy irregularities appearing in these greatly magnified edgewise views of the four typical sections are merely the draw marks in the metal . . . Write for our new booklet on this remarkable new product.

WEIRTON



STEEL CO.

WEIRTON, W. VA. Sales Offices in Principal Cities

Division of NATIONAL STEEL CORPORATION Executive Offices, Pittsburgh, Pa.



Resourcefulness

Resourcefulness spells the difference between leadership and mediocrity. It spells the difference between winning wars . . . baseball games . . . sales — and losing them!

Resourcefulness enabled Luxaire to provide many items of war equipment in greater quantities and in less time, at a saving of critical materials and manpower — by introducing new processes.

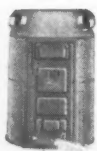
Resourcefulness enables Luxaire, in its first full year of manufacturing, to become one of the large volume producers of warm air furnaces and air conditioning units.

Luxaire heating and air conditioning units, after the war is won, will reflect the resourcefulness of the Luxaire organization.

Luxaire

THE C. A. OLSEN MANUFACTURING CO., ELYRIA, OHIO

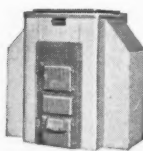
THE PRE-WAR LINE OF LUXAIRE WARM AIR HEATING
AND AIR CONDITIONING UNITS FOR COAL, GAS, OIL



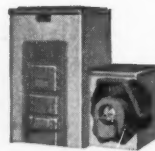
Series 600
Coal Fired
Steel Furnace



Series C
Coal Fired
Cast Furnace



Series 700
Coal Fired
Gravity Furnace



Series AC-700
Coal Fired Air
Conditioning Unit



Series A
Gas Fired Air
Conditioning Unit



Series G
Gas Fired
Gravity Unit



Series H
Gas Utility Air
Conditioning Unit



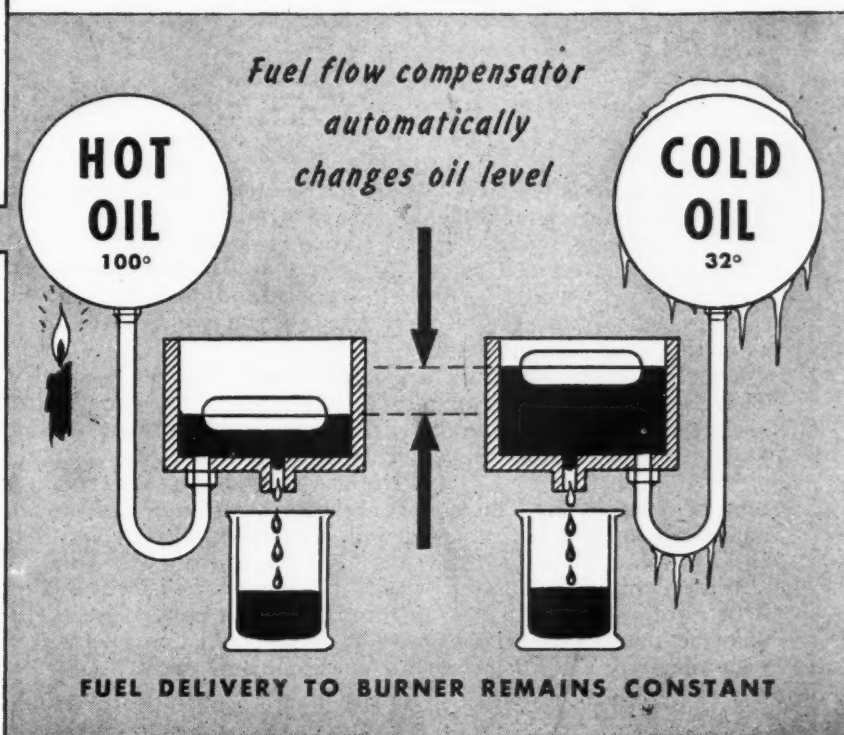
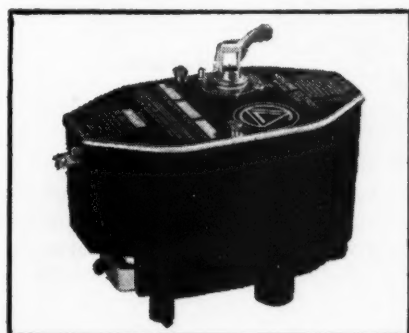
Series 8000
Oil Burning Air
Conditioning Unit

Steady, even fuel flow regardless of oil temperature with "DL" FLOAT VALVES

*The automatic fuel
flow compensator
does it!*

The viscosity of fuel oil varies with the temperature. Cold fuel oil flows slowly—warm oil, freely. Without the automatic compensator, the fire in the burner would die down if the fuel were cold. If the fuel were warm, too much would be fed to the burner, with resultant waste and overheating.

The automatic compensator "feels" the temperature of the fuel oil and raises or lowers the position of the float—increasing or decreasing the head pressure on the metering valve to maintain constant fuel flow.



THE automatic fuel flow compensator consists of a piece of thermo-static bi-metal which supports the float. When the fuel oil is cold the bi-metal warps and raises the float—allowing the oil level in the float valve body to rise. When the fuel is warm, the bi-metal compensator warps in the opposite direction, lowering the float and consequently the liquid level. Since the fuel delivery through the metering orifice depends upon the head pressure above the needle and the viscosity of the oil, this action of raising or lowering the float results in a uniform rate of fuel delivery regardless of fuel temperature.

This method of compensation, using the temperature of the fuel, is an important feature.

It is but one of the many reasons why you should insist upon "DL" equipped heaters when you are selecting a line to sell.

DETROIT LUBRICATOR COMPANY

General Offices: DETROIT 8, MICHIGAN

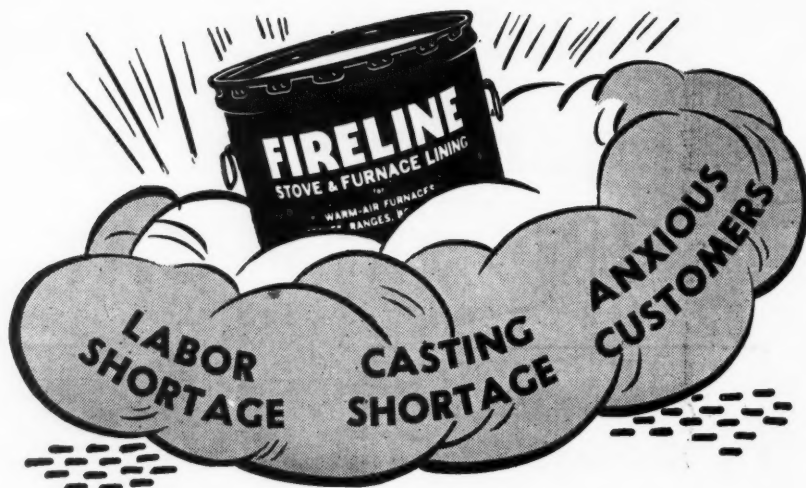
Canadian Representative—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG

Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION



"DL" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • Radiator Valves and Balancing Fittings • Arco-Detroit Air and Vent Valves • "Detroit" Expansion Valves and Refrigeration Accessories • Air Filters • Stationary and Locomotive Lubricators.

THERE IS a Silver Lining—



Yes, Fireline *is* the silver lining in the clouds for a lot of furnace men. Today's shortages and difficulties have brought home to them forcefully the big advantages that Fireline has *always* offered.

Number one on the list is the fact that Fireline represents the best way to repair cracked or broken firepots, and does the job without new castings. You can get all the Fireline you want—without permits or priorities, and without delay.

Equally important, Fireline eases your "Help Wanted" problem. There's no need to dismantle the furnace; just pound Fireline into place through the furnace door, trim with a trowel, and the job is done. Your men can handle more jobs per day.

All this means, too, that Fireline helps build and retain your customers' good will. You can serve more customers, doctor more furnaces, get around faster. And with Fireline, you do a job that not only costs less but gives the customer more heat from less fuel.

With all these basic advantages, it's no wonder Fireline is in the spotlight right now. Add the fact that every job pays a greater percentage of profit than installing new castings and you'll know why so many furnace men say: "It's Fireline for me from now on."



Two other products you should know

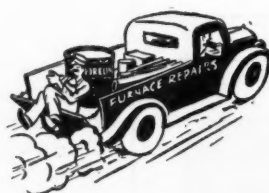


Ironset Asbestos Furnace Cement—the high-quality cement for setting up new furnaces and re-cementing old ones.

Withstands higher temperatures; will not crack, shrink, bloat, or blister. Makes your work more permanent. (And your customers, too.) Prove its Superiority on your next job.



Fire Hearth Castable Refractory—The ideal material for setting stokers and building oil burner combustion chambers. Just mix and pour; then trowel it smooth. Conforms to any shape. Air-setting. Does not shrink, crack, or crumble.



Keep a
Drum
on the Truck

To get full advantage of Fireline's speed and ease of application, keep it handy so you can go right to work on any job that turns up. Write for bulletins, prices, and name of nearest jobber.

FIRELINE STOVE & FURNACE LINING CO.

1816 Kingsbury St. (Dept. J)

Chicago 14, Ill.

FIRELINE

STOVE & FURNACE LINING

THESE
Crescent Pliers
WILL BE BACK
IN HOMEFRONT SERVICE



Here is another Crescent Tool product that someday will be coming back from "the wars." The very popular Crescent Linemen's Side Cutting Pliers made of forged Crestoloy steel.

We do not hesitate to admit that — like other Crescent Tools — military service has made them better, stronger and more serviceable in use.

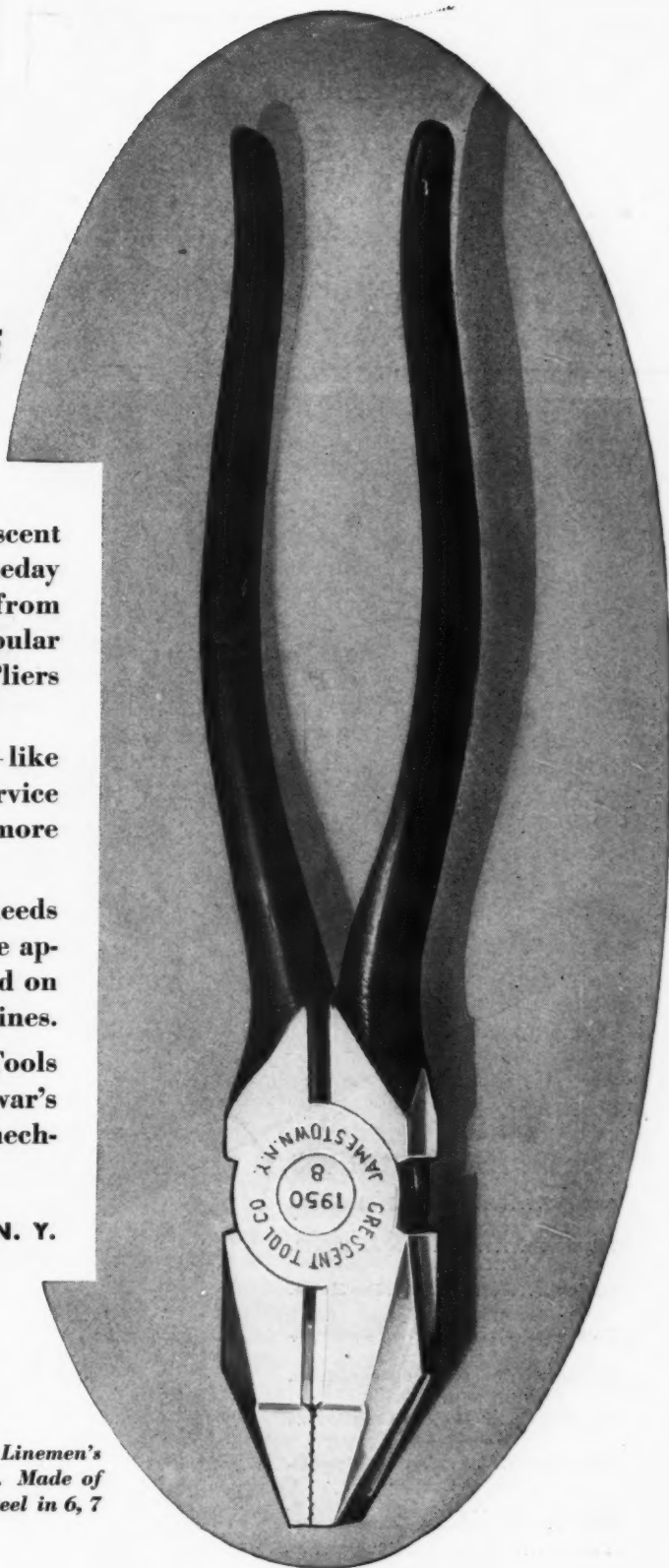
This tool was designed to meet the needs and rugged use to which it must be applied. Each one is *individually* tested on our specially designed testing machines.

As long as the war lasts, Crescent Tools will be "few and far between." With war's end, they will be available to good mechanics everywhere.

CRESCENT TOOL CO., JAMESTOWN, N. Y.

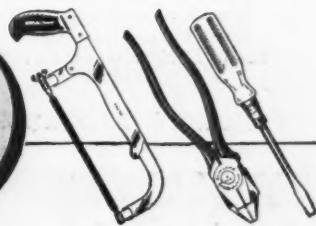


Crescent No. 1950, Linemen's Side Cutting Pliers. Made of forged Crestoloy Steel in 6, 7 and 8" sizes.



CRESCENT TOOLS

Give Wings to Work



**Call Ryerson
...for
quick steel**



CALL THE PLANT NEAREST YOU

CHICAGO 16th and Rockwell Sts.
Rockwell 2121
MILWAUKEE 320 So. 19th St.
Mitchell 7000
DETROIT 1600 E. Euclid Ave.
Madison 3860
ST. LOUIS 5 Clinton St.
Central 1020
CINCINNATI .. Front St. and Freeman Ave.
Cherry 3232
CLEVELAND ... E. 53rd and Lakeside Ave.
Henderson 1000
PITTSBURGH 330 Grant St.
Walnut 7540; Carnegie 795
PHILADELPHIA 5200 Grays Ave.
Bell-Belgrade 1412; Keystone-West 1644
BUFFALO 40 Stanley St.
Humboldt 3311
NEW YORK 203 Westside Ave.
Jersey City, N. J.
New York City Rector 2-3700
Newark Market 2-6067
Jersey City Bergen 4-1123
BOSTON .. Third & Binney Sts., Cambridge
Kirkland 6000

JOSEPH T. RYERSON & SON, INC.

WRITE FOR STOCK LIST

**Over 10,000 kinds,
shapes and sizes
in stock...**

PROMPT, PERSONAL SERVICE ASSURED

RYERSON STEEL-SERVICE



"Service" With Insufficient Manpower

WITHOUT question, this Fall is the most difficult period the warm air heating dealer has faced in the last twenty years.

Home owners have accepted wholeheartedly the warnings broadcast over the air, from billboards, through the public press that there is great likelihood of fuel shortages this coming winter and are determined, seemingly, to adopt the suggested "winterize your home" program to save fuel by having the furnace cleaned, installing automatic control devices, apply storm sash and weatherstripping and insulation. The result is orders piled on orders until warm air heating contractors in many localities face an incredible task.

The following thumb-nail picture of a 30-minute visit with a dealer is not hand-picked—it is going on in thousands of shops every day. One customer phoned to ask why, with his order for cleaning placed last July, his furnace had not been cleaned by September; the dealer said his order sheet showed 34 cleaning jobs still ahead of the customer. Another customer called in person to ask why his replacement furnace had been standing, untouched, in his basement for three weeks; he was told that "We intend to give heat to those who have no heat; you have heat and will be comfortable until severe weather." The third housewife phoned to ask why the control equipment she ordered a month ago had not been installed, and was told there were still 20 control installations awaiting the service man. This routine, said the dealer, goes on hour after hour, day after day, without letup.

It is unfortunate that the warm air heating dealer, much as he wants to help the war effort in conserving fuel and keeping home owners comfortable, is faced with a manpower crisis without parallel in our experience. Where there were three service men in normal times, there is now only one and sometimes not even one. Where the service men formerly were young, active men, today's service men are oldsters who find the pressure of work beyond their physical powers. Where, formerly, more men and trucks made it possible to route work to save time and mileage, today it is necessary to rush service men from one "hardship" case to another, practically without regard for time or route or mileage. Where eight hours was a normal day, now ten, twelve, fourteen hours is not at all unusual.

To meet this situation, there is no immediate remedy. There will be, as time goes on, more service men available, but it will be months certainly before the

thin trickle becomes a real salvation to our problem. This industry—and other industries using service men—were unable in 1943 and 1942 to convince officials in "manpower" that service men cannot be trained over night and that without service men many of our community services would break down. We must continue to struggle along under the same handicaps we faced in 1943 and 1942.

We have done wonders—with the help of the government's publicity campaign and campaigns by groups of manufacturers and fuel producers—to "spread" the service season far beyond the active period of normal times. Where our "service" formerly was concentrated into September and October, this year "service" began in July and will be going strong in December, but this increased spread in time cannot completely solve the problem singlehanded.

AMERICAN ARTISAN believes that the following suggestions are in order. Some may seem incongruous, but all are taken from readers' questionnaires. (1) Control your temper—remember, the home owner does not fully appreciate your position and is moved by patriotic motives to save fuel. (2) Be as patient as possible and withhold sharp retorts—a little explanation will hold your customer's goodwill. (3) Try to route your "hardship cases" intelligently—owners who have no heat and homes with small children surely take precedence over jobs which can operate satisfactorily until severe weather. (4) Take time out once in a while to pat your service man on the back—he is doing a "super-man" job and probably hasn't time to take his nose off the grindstone long enough to appreciate just how good a job he is doing for you. (5) Train yourself or someone in the office to analyze telephone reports—many simple repairs can be done by the home owner without you (blown fuses, thrown switches, sheared pins, broken wire) are cases in point. (6) Separate the "tough" jobs from the easy ones—let some less skilled man take a try at the easy ones while your "star" tackles the tough ones. (7) Get yourself a "check sheet" and develop an inspection procedure—if a cleaning discloses a repair or a replacement, don't scatter the furnace over the floor until you know you can get a part or replace the furnace. Many of these jobs can be handled later in the winter without danger to the owner. (8) Don't waste too much time with women—if your phone conversation indicates some simple trouble and the woman doesn't understand what you're talking about, ask that the husband call you so you can tell him what to do before you send a service man.

How To Operate Under MPR-251

In the July issue we announced the reerection of MPR-251 and some criticism of the order. In August and September we continued the criticism. Since July, several state associations have discussed the order and entered protests. But, seemingly, the order is now in force and readers must conform to its regulations. The order is too long to publish in full, but the following explanation sent to members of the Michigan Sheet Metal, Roofing, Heating and Air Conditioning Contractors Association is a good analysis. Get a copy from your OPA office and study the order along with this explanation.

What Is Covered:

(1) All building and construction contracting. This includes: installation of building materials, that is, anything incorporated into or made a part of a building or construction project. (The regulation covers sales of building materials on an installed basis, as well as sales of installation services alone.)

(2) Other construction services, such as maintenance, repair or remodeling of a building, structure, or construction project, excavation, demolition and site clearance, water-well drilling and landscaping.

Who Is Covered:

All contractors, subcontractors, and other persons who supply these construction services either with or without the building materials installed, whether on a cost-plus, lump-sum, or unit-price basis. This includes all building trades like bricklaying, plumbing, painting, etc., and other construction trades, such as road building, bridge construction, steel erection, etc.

How to Figure Your Ceiling Price:

Your ceiling price depends on whether you sell on a unit-price, cost-plus or lump-sum basis.

Cost-Plus Jobs

Unit-price jobs means jobs on a per-hour (for example, oil burner service by the hour) per-foot, per-square or other time or measurement basis.

Your ceiling price is the highest unit rate you charged a purchaser of the same class for the same kind of job during March 1942. If you used another price figuring method at that time, you may use the same method in determining your unit rate now.

If the cost of materials has gone up since March 1942, you may add an amount to cover that increase up to the ceiling prices.

You may also add increases in labor costs up to and including October 3, 1942. You may include here increases in Federal old age benefits, unemployment compensation taxes, and workmen's compensation and public liability insurance. (For WAGE INCREASES SINCE OCTOBER 3, 1942, see text following.)

If you did not do the same kind of work during March 1942, you must file with your OPA District Office an application for approval of a ceiling price. You must put in your application:

- (1) Your name and address;
- (2) The kinds of work to be done;
- (3) The area where the work is to be done;
- (4) Why you do not have a March 1942 price or pricing method;

(5) Your proposed ceiling price;

(6) How you figured this price: Show your costs and margin, including profit. If wage rates for the particular class of mechanics or laborers have gone up since October 3, 1942, show the October 3, 1942, rate, the increases since that time, and whether these increases have been authorized or approved by the Wage Adjustment Board, National War Labor Board, or Economic Stabilization Director;

(7) The names and addresses of representative competitors of yours in the same area, and their ceiling prices for the same or similar jobs (if these ceiling prices are readily available to you).

You cannot charge the price you proposed until you get the approval by way of a letter-order by the OPA District Director.

Lump-Sum Jobs

Use the following formula:

- (1) Materials and installed equipment, if any; plus
 - (2) Labor at rates paid on October 3, 1942, plus
 - (3) Other direct costs, including subcontracts; plus
 - (4) Margin on comparable jobs, as explained below.
- The result is your ceiling price. (For WAGE INCREASES SINCE OCTOBER 3, 1942, see later text.) Figure the formula like this:

(1) Materials and Installed Equipment, If Any:

Charge what you actually paid, but never more than the ceiling prices fixed for your supplier by whatever OPA regulation covers the materials. If you yourself manufacture the materials you install, you must not charge more than the ceiling prices fixed for selling them to other persons.

(2) Labor:

You must figure labor costs at wage rates not higher than those paid on October 3, 1942, in the area where the work is done.

(3) Other Direct Costs, Including Subcontracts:

You may charge other direct costs of the job, including the cost of subcontracts, but not selling expenses. If you use your own equipment, you may charge the rental rate allowed by the OPA regulation governing equipment rentals.

(4) Margin:

Your margin includes administrative and overhead costs, selling expenses, and profits. You must not charge more than the highest estimated percentage

margin you charged on comparable contracts between January 1, 1939, and March 31, 1942. If you made no comparable contracts during that time, you must not charge more than you would have charged on a comparable contract in March 1942 according to your experience or that of the industry.

Use the following formula:

- (1) Estimate of materials and installed equipment, if any; plus
- (2) Estimate of labor costs at rates paid on October 3, 1942; plus
- (3) Estimate of other direct costs, including sub-contracts, plus
- (4) Estimated reserve for contingencies; plus
- (5) Margin on comparable jobs.

The result is your ceiling price. (For WAGE INCREASES SINCE OCTOBER 3, 1942, see below.)

Figure your estimates of materials, labor and other direct costs, and your overhead and profit margin in the same way as for a cost-plus job. In your estimated reserve for contingencies you may include those that you can in good faith reasonably foresee.

Wage Increases Since October 3, 1942

If you pay higher wages than on October 3, 1942, and the increase has been authorized or approved by the Secretary of Labor under the Davis-Bacon Act, Wage Adjustment Board, National War Labor Board, or Economic Stabilization Director for the area where the work is done, you may add the increased labor cost after you figure your margin. *No application to OPA is necessary in order to make such an adjustment in your price.* If none of these agencies authorized or approved your wage increases and OPA has not granted price adjustments for wage increases for your area for the particular trade, you must have OPA approval to add them to your ceiling price. You

may file an application for approval with your OPA District Office, giving the full facts.

What You Must Not Do

- (1) You must not sell or offer construction services or installed building materials for more than ceiling prices.
- (2) You must not ask your customer to furnish materials for processing if it was your practice to furnish these materials yourself.
- (3) You must not drop or reduce maintenance or repair services, customarily offered as part of a job.
- (4) You must not lower the quality of materials and equipments below that called for in the specifications, or, if you do, you must reduce the price accordingly.
- (5) You must not make the terms or conditions of sale harder on the customer than they were between January 1, 1939, and March 31, 1942. For example, you must not shorten the credit or cash-discount period or charge more for giving credit, or give less cash discount. However, you may change the conditions of sale to meet the requirements of a government agency.

Customer Must Be Told About Regulation

Before you make a contract or sale, you must tell your customers about Revised Maximum Price Regulation 251. He has a right to see a copy of the regulation of this OPA trade bulletin and you must have one at hand at your principal place of business and each branch office. This need not be done for any government agency.

Certificate of Compliance

At the time of final settlement of a job, you must give your customer, *if he asks for it*, a statement that you charged not more than the ceiling price.

To State and Local Associations, Members of Sheet Metal Contractors National Association

September 22, 1944.

Gentlemen:

Now that our National Association is a reality and is growing daily, let us all as individuals, as state and local associations, realize we have a central body where the problems we have talked over among ourselves, and in our various groups, can be crystallized into a working force for the benefit of our industry, the public, and ourselves.

We now have seven committees set up to study the problems in the various branches of our industry. The chairmen are all appointed and are looking for your cooperation. Why not have a meeting and discuss these problems and send your suggestions and opinions to the chairmen of these committees, or to our secretary, Clarence J. Meyer? In this way you can

help these committees in formulating their policies and objectives.

I would like to have all state associations represented on these committees and would ask the officers to select qualified men who are members of the National Association to serve and represent their state. We will have a directors' meeting in the near future and will study the reports of these committees and set up means of obtaining our objectives.

You need your association and your association needs you.

Very truly yours,
SHEET METAL CONTRACTORS' NATIONAL
ASSOCIATION, INC.

[Signed] P. S. Varden,
National President.

Eight Ways of Costing Overhead

By Arthur Roberts

OVERHEAD is a headache to all businessmen. The average contractor knows that a high overhead is bad for profits, but doesn't know enough about its operation because he doesn't get down to the root of the problem. For this reason, we give you a behind-the-scene picture of overhead as it functions in your business so that you can better apply it in costing sales.

In the first place, you can't estimate overhead to the penny the same as labor and materials. You know how much you pay for labor and materials, you can determine how much labor and materials are needed on a job, and if you estimate accurately you may cost these items accurately—but overhead is not computable in the same definite manner. It is an indirect computation, hence, an approximation, and your objective should be that the overhead figured on estimates and other sales approximates as accurately as possible the actual overhead expense as recorded on your books.

There are eight ways of costing overhead expense:

1. On wage cost.
2. On materials cost.
3. On prime cost—wages, materials, and direct job expense.
4. On selling price.
5. On labor hours, or the time element.
6. By the unit of production method. So much overhead chargeable to each product. This method may be Okeh on war contracts where the same product is being fabricated continuously, but it is not usable on installations which do not follow the same production pattern.
7. Machine-hour cost. Usable only where the machine is the main factor in production. Not usable on service work or installations.
8. By department. The other seven methods of costing may be used in departmental costing. Time and materials are chargeable to departments as used, but overhead must be prorated directly as used by the department and indirectly on a percentage basis where it is impossible to determine with mathematical exactitude how much overhead expense to charge to a department.

On estimate work, the "price" is an unknown quantity until you build up to it by computing labor, materials and overhead, then you add your profit, either a lump sum or a percentage. The profit may be an arbitrary sum or a fixed amount based upon experience figures and influenced by conditions and competition.

Labor-Hours Is Easiest Method

The first four methods require the use of a percentage based on your own experience figures and budgetary estimates; the fifth method considers overhead in dollars based on your own experience figures and budgetary estimates and the normal labor hours worked each month, which are divided into the overhead to get the labor-hour overhead cost. For example, a shop overhead is \$176 a month, working

hours 176 a month, hence, labor-hour overhead cost is \$1. If a job is estimated to take 10 hours, the overhead is costed at \$10.

The labor-hour method is the safest for contractors and the easiest to compute. No percentages are involved. Do not confuse costing overhead on an estimate with the computation of margin on sales or mark-up on cost to get a selling price. In this field, most sales are costed by computing mark-up on cost or margin on selling price but these formulas are safe only as long as prices on materials and labor do not change. Most industrialists have abandoned the costing of margin on sales or mark-up on cost because labor and materials are not fixed and do not decrease or increase in price with overhead expense.

Modern practice is to use the labor-hour cost where labor is a big factor in production or the machine-hour cost where the machine is a big producing factor. Contractors should follow the trend. Using a percentage of sales or cost to determine the spread to cover overhead and net profit is not the best way to cost estimates and you stick your neck out still further if you use prior-period figures that are too old as the basis for your overhead computation because overhead expense may have changed since the experience figures were recorded. Use a current figure as a basis for overhead computation on estimates.

It is all right to compute selling prices on merchandise or flat rate service by figuring margin on sales or mark-up on cost because there is no other practical way to do it inasmuch as you do not compute overhead on each individual sale and so you must average the spread based on experience figures. But on estimates the overhead can be costed for each job, preferably by means of the labor-hour method.

Using this method, a job that takes 10 hours is charged with 10 hours overhead expense, and rightly so, a job that takes 5 hours is charged with 5 hours overhead expense. The trouble with using any of the first four methods described is that overhead is not calculated on *time*, but on the cost of materials, labor or selling prices, which change for better or worse and never change in ratio to overhead expense, which is composed of rent, depreciation, insurance and other charges more or less fixed that do not fluctuate with time and material costs or selling prices. Moreover, most overhead expenses, such as rent, depreciation, insurance, etc., are based on the time element, hence, computing overhead likewise is logical and gives greater assurance of accuracy.

To illustrate the fallacy of computing overhead on selling price or cost, say your experience figures for the previous 12 months showed the following costing elements:

Sales	\$20,000	100%
Labor, materials, direct job expense..	12,000	60%
<hr/>		
Margin of profit on sales.....	\$8,000	40%
Overhead expense	6,000	30%
<hr/>		
Net profit on sales.....	2,000	10%

You cost an estimate based on these experience figures as follows:

Labor—2 men, 8 hours a day, 15 days= 240 manhours at \$1 an hour	\$240	
Materials	249	
Direct job expense.....	15	
Prime cost	\$504	60% of sales
Overhead expense	252	30% of sales
Net profit	84	10% of sales
Selling price	\$840	100%

You costed this estimate on sales, getting the percentage from your profit and loss statement for a prior period, anywhere from a month to a year old, whichever provides the most accurate ratios in your judgment. The profit and loss statement showed prime cost as 60 per cent of sales, so you use this percentage as the prime cost on your estimate. After figuring labor, materials and direct job expense at \$504, you divide it by 60 to get 1 per cent, or \$8.40. If sales are 100 per cent and 1 per cent of prime cost figures \$8.40, the selling price is \$840. The other costing elements are percentage calculations on the \$840 selling price.

On paper, you estimate a net profit of \$84, but your overhead is \$6,000 yearly or \$20 a day figuring 300 working days to the year, so a job that requires 15 days should carry \$300 overhead, which should change the foregoing figures to:

Sales	\$840	100%
Prime cost	504	60%
Margin of profit on sales.....	\$336	40%
Overhead expense	300	35½%
Net profit on sales.....	\$36	4½%

This shows a net profit of 4½ per cent, not 10 per cent. Because your books show you actually spent \$6,000 for a prior period and this figures \$20 per working day, this overhead cost is more likely to be the right one on current estimates unless conditions indicate otherwise, in which case, you should budget your overhead in line with expectations, but this change in no way affects the operation of the labor-hour method.

Whether you change your experience figures on overhead or use them "as is," the labor-hour method is the safest on estimates. Each journeyman on an estimated job carries a certain amount of overhead expense based on his time and an estimate figured accordingly is most likely to show profit.

The foregoing job would be costed this way, using the labor-hour method.

Labor—2 men, 8 hours, 15 days = 240 man-hours at \$1 an hour.....	\$240	
Materials	249	
Direct job expense.....	15	
Prime cost	\$504	
Overhead expense—240 manhours at \$1.25 an hour	300	
Net profit on sales.....	89.30	
Selling price	\$893.30	

Two men working 8 hours daily give 16 manhours a day. In 300 working days, they work 4,800 hours.

Dividing 4,800 hours into \$6,000 overhead expense gives \$1.25 as the labor-hour overhead cost as used in the foregoing.

The ratio of prime cost and overhead, or over-all cost, to sales, is 90 per cent on the profit and loss statement, and over-all cost is \$804 by the estimate, so 90 divided into \$804 is \$8.93. If the selling price is 100 per cent, then 100 times \$8.93 is \$893.30. Obviously, by using this method based on prior-period ratios and the labor-hour method, you have a better chance of getting back the overhead you spend because most of this outgo is based on the time element.

Compare the first estimate using the percentage of sales method with the second estimate using the labor-hour method.

Selling price—labor hour method.....	\$893.30
Selling price—percentage of sales method....	840.00

Overhead short-costed	\$ 53.30
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How Dealers Lose Profits

This explains why many contractors are perplexed when they compute net profit at the end of a period, deducting outgo from income, to find that the net figures 3 or 4 per cent when they have been figuring 10 per cent or so net profit on estimates. In search of enlightenment, they usually go hunting for loss-leaks without success because operations are being handled efficiently. Their profits are not up to estimated expectations because their estimates are not costed properly. Prime costs are seldom inaccurately estimated because the computation of labor, materials and direct job expense is comparatively easy because suppliers' invoices, time slips and direct job vouchers give the cost figures distinctly and it is just a matter of addition or multiplication to arrive at accurate prime costs, but overhead is the *estimate* part of the estimate, hence, gives the most trouble.

To determine any changes in labor and materials cost, you must watch invoices from suppliers and payroll. To determine a change in overhead expense, you must watch this outlay as per your financial accounts month-to-month, using either the prior-month figures or figures covering 3 to 12 months. Small differences, more or less, will not trouble you because they can be absorbed and often level off, but wide variations must be watched. Using the labor-hour overhead cost, you have one figure that remains fixed. Time is always the same. As long as you work your shop the same hours each day, just divide these hours into the current overhead expense in dollars to get the labor-hour overhead and you have a figure as accurate as it is possible to get.

"Standard Costs"

If you were to get many identical installations, your experience figures might enable you to give a price on a new job without going through the mathematical routine of estimating, but the figures upon which you base your price would be based on estimates made previously. Such experience figures are known as "standard costs" and you may use them "as is" providing all elements of costs have not changed.

In prewar years, when prices were more stable, "standard costs" based on experience figures could be used "as is" with greater safety, but, for a long time to come, costs will fluctuate, hence, "standard costs" should be tempered by whatever changes may occur in the price of items listed under labor, materials and

(Continued on page 130)

Interpretations, Amendments, Easements, To Existing Orders

1945 Oil Coupons Still Good

PERIOD 4 and 5 fuel oil coupons, along with definite value coupons left over from this year's ration, may be used throughout the coming heating year, the Office of Price Administration states.

These coupons were scheduled to expire on Sept. 30. An amendment issued Sept. 10 extends their validity for rationed fuel oil purchases until August 31, 1945.

(Amendment 25 to Revised Ration Order 11—Fuel Oil—Issued and effective Sept. 11, 1944.)

Zinc Modifications

RESTRICTIONS on the use of zinc and zinc products have been modified by amending Conservation Order M-11-b.

Major provisions of the amended order follow:

Restrictions on the use of zinc or zinc products for protective coating or plating (other than paint), except for articles on List A, are removed. The order previously permitted use for protective coating of articles not on List A of not more than 60 per cent of the zinc or zinc products used by a person for this purpose during 1941.

The amended order includes a new List B, which enumerates articles for which zinc or zinc products may be used. For articles not on either List A or List B, the quota has been increased from the previous 60 per cent of 1941 use to 80 per cent for zinc products.

Relief from provisions of the amended Order M-11-b are limited to such action as may be authorized under Priorities Regulation No. 25, which provides for "spot" authorization where it does not interfere with war production.

AC Equipment Rules

RULES governing the production and sale of industrial and commercial air conditioning equipment have been modified to give them more flexibility and provide for a proper distribution to most essential users.

Production restrictions in order L-38 have been modified by inclusion of a Schedule A in the order and the elimination of the four lists which were previously attached to it.

Schedule A gives production quotas for each type of equipment covered by the order. Those types which may not be made at the present time have been assigned to zero quota, which, when materials and parts become more plentiful, may be changed to permit production of the particular items involved.

The four lists removed from the order cover (1) prohibited items; (2) items which could be obtained with automatic ratings; (3) essential uses of refrigeration and air conditioning equipment, and (4) classes of refrigeration equipment which were permitted.

Elimination of the essential use list does not mean

that applications for refrigeration and air conditioning equipment will be granted for all uses at the present time. In administration of the amended order, it is planned that for the time being applications for equipment will be granted only for uses which formerly appeared in the essential uses list.

The amended order requires that a preference rating of AA-5 or higher is required for the purchase of all new air conditioning and refrigeration equipment. Furthermore, maintenance, repair and operating supplies (MRO) ratings may be used only for the replacement of worn out equipment which has been in the purchaser's possession for at least 90 days. Certain persons, however, who are permitted to use an AA-1 preference rating for their MRO requirements will be permitted to use their ratings for minor capital additions.

Use of Forms WPB-2448 and WPB-2449 have been discontinued. In the future all applications for air conditioning equipment will be filed on Forms WPB-1319 or WPB-617, depending upon how much construction is involved in installation of the equipment.

The order, as amended, also incorporates reference to Priorities Regulation No. 25, which sets forth the "spot authorization" procedure. The amendment states that items which are covered by Order L-38 are specifically subject to the "spot authorization" procedure. However, it restricts the use of condensing units, compressors, or controls to those obtained either through special sales, which are governed by Priorities Regulation No. 13, or to those obtained from manufacturers and not from dealers, jobbers or manufacturers distribution outlets.

Can Sell Reject or Idle Steel

STEEL distributors may now apply for permission to deliver any off-grade or rejected steel or idle or excess inventory which they have been unable to move from their stock under the Controlled Materials Plan regulations, the War Production Board announced September 14.

Deliveries may be made to any person who has an approved end-use, but who is not in a position to furnish a CMP allotment number or symbol with his order.

WPB issued Direction 3 to CMP Regulation No. 4, effective September 13, 1944, to provide additional assistance to such distributors for the disposal of surplus and obsolete stocks of alloy steel in the NE-9400 series. The direction provides:

(1) Any person who has received an allotment of carbon steel may use that allotment to purchase alloy steel in the NE-9400 series from any distributor's stock, but this substitution may not be made when ordering from a producer.

(2) Any steel distributor operating under Order M-21-b-1 (steel warehousing order) who has an inventory of alloy steel in the NE-9400 series on hand or in transit to his stock on the effective date of this direction may offer and deliver, subject to the

approval of his customer, any such steel on any order that he is permitted to fill under CMP Regulation No. 4 which calls for the delivery of carbon steel. Any such delivery may be used by the distributor to support a stock replacement order for any general steel product in the manner authorized by Order M-21-b-1, officials explained.

Veterans Free from WMC Rules

WAR Manpower Commission has announced the lifting of all manpower controls for veterans of the present war.

Relaxation of manpower controls for war veterans is provided for in the following manner:

1. Veterans of the present war will *not* be required to secure or present statements of availability in order to change jobs.

2. Veterans of the present war may be hired by *any* employer without referral by the United States Employment Service or other authorized referral channels.

3. Any veteran of the present war who seeks employment through USES will be entitled to a referral, as a matter of right, to *any* job of his choice, without regard to the essentiality or priority status of such job.

4. Veterans of the present war may be hired *without* regard to employment ceilings. However, all employees who are veterans of this war will be counted against an established employment ceiling unless the applicable local employment stabilization program provides for the exemption of such veterans from employment ceiling determinations. No workers other than veterans of the present war and any other groups that may be exempted locally may be hired if employment is at or above the established ceiling.

Veterans of the present war are defined as those who have served in the armed forces of the United States subsequent to December 7, 1941, and have other than dishonorable discharges. The term "armed forces" includes the Army, Navy, Marine Corps, Coast Guard, Naval Reserve, National Naval Volunteers Women's Army Corps, Women's Reserve of the U. S. Naval Reserve, Women's Reserve of the Coast Guard Reserve, and the United States Marine Corps Women's Reserve.

Local offices of USES will continue to give all possible placement and counsel assistance to returning war veterans, and although such veterans may be referred without regard to priority referral, local USES offices will continue to offer referral and priority and other essential openings to veterans.

Substitute Refrigerants

USE of substitute refrigerants, such as methyl chloride, sulfur dioxide and ammonia, to take the place of Freon-12 must be continued until the Freon situation improves, according to an amendment to Conservation Order M-28 passed by the War Production Board September 27.

It had been expected that the use of substitutes in refrigerants and the restrictions on the use of Freon-12 in air conditioning would be discontinued on September 30, but an unexpected shortage of anhydrous hydrofluoric acid, a component of Freon-12, has made this impossible.

New Freon facilities had been completed that were capable of producing, together with existing facilities, a total of approximately five and one-half million pounds of Freon per month. This amount of production would have been sufficient to meet all known military and civilian requirements during the fourth quarter of 1944.

The shortage of anhydrous hydrofluoric acid that has developed, however, makes it necessary to operate the Freon facilities at less than 70 per cent capacity and necessitates extending the date on which restrictions can be lifted. Anhydrous hydrofluoric acid, besides being used in the production of Freon, is also required in the manufacture of high octane gasoline and for direct military use.

Idle Materials Sales

HOLDERS of idle and excess stocks of controlled materials are permitted to make special sales to persons who have been authorized to produce civilian goods under the "spot authorization" procedure. This was done by issuing Direction No. 1 to Priorities Regulation No. 13.

Special sales are those made by a person who holds idle or excess materials in a form in which he does not, as a general rule, sell them.

Persons authorized to produce civilian goods under the "spot authorization" procedure will be granted the right to use an allotment symbol, the initial letter of which will be "Z." Persons holding idle and excess stocks of controlled materials will be able to sell them to persons having such an allotment symbol.

The buyer need not charge controlled materials bought under the new rules against any Controlled Materials Plan allotment account. Special WPB permission is not required to make such a sale to a buyer who has been authorized to use a CMP allotment symbol whose initial letter is "Z."

Holders may also make special sales of non-controlled materials or products that may be sold to users on a rating of AA-5 if the buyer furnishes an order with a CMP allotment symbol bearing the initial letter "Z" granted him under PR 25, the "spot authorization" order.

However, a production schedule authorized under PR 25 does not permit any person holding it to acquire materials or products that may not be purchased from idle and excess stocks without an AA-5 preference rating or without special WPB permission. In order to acquire such materials, the person holding the schedule must obtain the rating or get special WPB permission, officials added.

L-41 Relaxation

ANY piece of "building service equipment" authorized or rated by the War Production Board on a special application form, or any piece of "processing or service machinery or equipment" whether or not specifically approved, may now be installed in an *existing* building without permission under Conservation Order L-41, regardless of cost limits, the War Production Board reported Sept. 29.

This action is taken by amendments to Conservation Order L-41 and to Direction 2 of the same order.

"Processing machinery or equipment" is machinery or equipment used for the manufacture, processing or

(Continued on page 108)

On Our Industry's Front

Heating Devices Prospects

IN ACCORDANCE with Priorities Regulation 25 domestic oil burners and domestic coal stokers (as well as other formerly restricted items) may be produced if conditions set forth in the order are met. (AA, September 44, page 52.)

Material has been authorized for the production of 30,000 domestic type oil burners and 37,500 domestic coal stokers during the fourth quarter of 1944. However, it is not expected that any appreciable quantities of either the burners or stokers will be on sale until early in December.

Order L-74 and L-75 will be amended to permit the resumption of production, most of which will go to civilian use.

OCR's warm air furnace requirements for the first quarter have not been definitely decided. The availability of steel and the available capacity will determine the number to be produced.

Donald S. Woods, Chief,
Plumbing and Heating Branch,
Office of Civilian Requirements.

Government-Owned Machinery

TO assure the prompt removal of Government-owned equipment from private plants whose war contracts have been terminated, the Director of Contract Settlement has issued Regulation No. 4. This regulation gives the contractor the opportunity either to buy the equipment or have it removed promptly from his plant within 60 days after request for removal, except when necessary for other war purposes.

Regulation No. 4 advises manufacturers what equipment they will be allowed to purchase and to know that unwanted equipment will not be left to crowd their plants. Small plants as well as large ones, sub-contractors as well as prime contractors, will have an opportunity to purchase equipment in their plants, provided it is not needed somewhere else for war production.

The new regulation provides the methods by which the contractor will put in his bid for purchase of the equipment or will request its removal. It specifies the procedures the Government agencies must follow to meet these requests where they are not inconsistent with the needs of war production or the national defense. It sets up the mechanism for another procedure in preparing industry for its peacetime tasks.

Manpower Control to End V-E

WAR Manpower Commission announces that with the ending of the war in Europe the employment stabilization program, the required hiring of male labor through the United States Employment Service and the fixing of employment ceilings will cease. The 48-hour work week in war plants and the non-regulatory functions and programs of USES will be continued and strengthened. These four policies constitute what is frequently referred to as "manpower control."

WMC emphasizes the seriousness of the manpower situation still prevailing; the "desperate need" for increased production of certain items. The 48-hour week requirement cannot be relaxed in all plants after the defeat of Germany.

Referring to estimates that 4,000,000 workers will be released from their present employment, WMC says that it would be no longer necessary to maintain the regulatory phases of the manpower controls as a national requirement. Any controls that hereafter become necessary will be established locally to meet specific problems. The WMC officials will consult with management and labor committees and with procurement officials in the localities as to such action.

PR-25 Progress Report

REPORTS indicate that the manufacture of \$26,055,000 of civilian goods between now and September 30, 1945, has been authorized under the spot procedure contained in Priorities Regulation No. 25.

Reports received from field offices indicate that a total of 1,506 applications had been filed under the procedure through September 14, 1944. On that date, 124 applications had been approved. Eighteen applications had been denied because of adverse War Manpower Commission decisions, while 245 had been denied or rejected for other reasons. The remainder of the applications are still being processed.

Field offices have authorized the use of 321 tons of carbon steel, 4,200 pounds of brass mill products, 750 pounds of copper and copper base alloy foundry products, 1,513,479 pounds of aluminum for the manufacture of these products, according to the Controller Division's report. Persons who will make civilian products under the 108 authorizations covered by the report expect to hire 689 additional employees to carry on their production.

4th Quarter Civilian Steel

THE War Production Board's Requirements Committee has allotted 100,000 tons of carbon steel and 25,000 tons of alloy steel for distribution to manufacturers of civilian goods during the fourth quarter of this year under the "spot authorization" procedure.

This action will permit WPB regional offices to grant purchase authority for new production steel to manufacturers whose applications under the spot procedure are approved. The Requirements Committee made this steel available for use under the spot procedure only after it was determined that it would not be needed for war or programmed essential civilian goods production.

This new production steel reserve will be used primarily to make allotments to small plants which are suffering hardship. In addition it will be used to provide "fill-in" material to be used in conjunction with idle and excess stocks. Regional offices will be permitted to make allotments up to 100 tons of carbon steel during the quarter, but all applications for more than that amount must be referred to Washington. Regional offices already have the machinery set up with which to make allotments of this steel. It only

remains for regional offices to be given their individual reserves for them to be in a position to grant allotments on the basis of which persons authorized to make civilian goods under "spot" will be in a position to place purchase orders.

In the determination of allotments the following preferences in order of importance will be used as a guide:

1. All applications which are certified by Smaller War Plants Corporation as hardship cases,
2. Applications from plants employing fewer than 250 wage earners,
3. Applications for authorization to produce Office of Civilian Requirements preferred products,
4. Applications indicating ability to use large quantities of surplus materials with "fill-in" amounts of new materials, or facilities immediately available for utilization of new materials, or provision for employing a large number of workers.

New FHA Booklet for Dealers

IN PREPARATION for a large volume of residential repair and modernization work expected when wartime restrictions can be eased, the Federal Housing Administration has just issued a new booklet exclusively for the use of building material dealers and contractors. The booklet, which will aid in carrying out new Title I regulations effective July 1, 1944, is entitled "Here's How to Make Sales and Satisfied Customers with FHA Title I Loans," and is being distributed through qualified lending institutions to dealers who originate Title I property improvement loans in connection with their sales.

The booklet was produced with two purposes in mind, according to FHA. First, it aims to give the dealer, in handy reference form, essential operating facts he needs to know in order to originate property improvement loans which are eligible for discount by lending institutions and for FHA insurance. Second, the booklet seeks to show what FHA expects of dealers who participate in its property improvement program.

The booklet is reserved for distribution exclusively through banks and qualified lending institutions to dealers who have been investigated and approved pursuant to provisions of Regulation VIII, Section I. The booklet is not promotional material. Rather, its principal objectives are to inform the dealer how to use Title I correctly and to acquaint him with certain responsibilities which he must assume in operating under the Title I regulations effective July 1, 1944.

30,000 Domestic Oil Burners

MATERIAL has been authorized for the production of 30,000 domestic type oil burners during the fourth quarter of 1944, for replacement and hardship cases.

Production of this type of oil burner has been prohibited since April 15, 1942, but essential replacements have been made from inventories of manufacturers and dealers. These inventories have become depleted, however, and individual consumers are now experiencing considerable difficulty in finding burners to meet their requirements. For this reason it was necessary to resume production of the domestic type burners, WPB officials explained.

Although material has been authorized for produc-

tion during the three months beginning October 1, WPB officials do not expect that any appreciable quantity of these oil burners will be on sale until early in December. Since they have not been made for more than two years, production cannot be started until production lines have been set up, WPB said.

Order L-74, controlling oil burner production, has been amended to permit the resumption of output of domestic type oil burners.

37,500 Domestic Stokers

MATERIAL has been authorized for the production of 37,500 domestic coal stokers during the fourth quarter of 1944, the War Production Board's Office of Civilian Requirements announces.

WPB officials emphasized that home owners should not expect that any appreciable quantity of these stokers will be available for sale to them until December at the earliest. Since production of domestic stokers was halted early in 1942, manufacturers will need a couple of months to resume production and to get the stokers distributed.

Material also has been authorized for the production of 6,500 commercial and industrial stokers during the fourth quarter. WPB earlier had announced fourth quarter production in that category at 2,500, but this figure was raised to 6,500 because of the acute need.

Officials explain that many existing stokers are reaching the end of their usefulness, and that replacement is more advisable than further repairs.

Officials said that Order L-75, controlling stoker production, has been amended to permit the resumption of output of domestic type stokers.

Post-War Repair Market

THE task of putting the nation's 37,500,000 homes, neglected of necessity during the war, back in a state of good repair will be the Number One job of the allied building industries in the immediate post-victory period, says Abner H. Ferguson, commissioner of the Federal Housing Administration.

The job to be done, he declared, has assumed "tremendous proportions and obviously will at first take precedence over the rest of the housing field, even new construction, as important as that is."

There is almost no reconversion problem in the home repair business, Mr. Ferguson said, pointing out:

"Most of the required materials have retained their character throughout the war, paint has remained paint; furnace, rain goods, roofing, have remained the same. They were simply diverted to war uses and at a stroke of a pen can go back to the peacetime uses for which they were developed in the first place."

"Our biggest problem after the war is going to be employment—both immediately and over the long pull," Mr. Ferguson declared. "Home repair and improvement is a particularly large employer of labor—both skilled and unskilled."

"While each individual job is small in comparison to the value of the property, the aggregate is a large item in our business and economic structure at all times," Mr. Ferguson declared.

"It will be even greater after this war."

Citing FHA's 10 years' experience in the field, Mr. (Continued on page 106)

Architects' and Builders' Prediction Of the Post-war Home Cost and Type

THE following "hard-boiled" prediction may upset some of your pet ideas of the cost and type of post-war home which will be built and sold. Between \$6,000 and \$10,000 will be the cost of almost 50 per cent of the houses. The "prefab" will be stymied by building codes, lack of eye appeal, too high cost. And every family won't rush to build or buy—they will have to be sold. 76 per cent will demand gas or oil—say builders.

THERE have been many surveys and predictions on residential construction after the war. Most of these are based upon "need," or expressions of desires by prospective owners, or a national sampling. In Chicago, however, the Airtex Corporation made a survey among architects and merchant builders, also contacting manufacturers, building and loan associations, sub-contractors, utility executives, post war planning organizations—and others. More than 200 opinions were gathered by mail or in person. Following briefly are the findings as published in "American Builder" magazine:

"Opinions and survey results regarding the probable cost of the post war house vary considerably but most of them place a great emphasis on the low cost home. One national survey estimates that 50% of all dwellings built after the war will cost under \$5,000. Another organization predicts that 85% of after 'V' day homes will cost less than \$6,000, and says in the same breath that building materials will cost 35% more than they did in 1940. Reports of this type are convincing the average citizen that good homes will be available for only a few thousand dollars whereas Chicago builders are finding it difficult to provide satisfactory shelter for anything under the maximum price set by the government.

"At the present time the \$6,000 defense house (which appears to be the minimum as well as maximum price) consists of about thirty feet of land, and a two-story building about twenty by twenty-two feet square with five or six small rooms. Apparently this is about the minimum requirement for the great mass of home owners but in spite of this fact the talk about the two and three thousand dollar dwelling continues to gain momentum. When the man on the street is asked just how this revolutionary building miracle is to be performed he says, 'I dunno, but it must be true, I read it in a book.'

"The Chicago architect and builder has no illusions about building costs—it's his business and he knows. The composite opinion is as follows:

2% of post war homes in this area will cost under \$4,000.

16% will cost between \$4,000 and \$6,000.

49% will cost between \$6,000 and \$10,000.

33% will cost over \$10,000.

"These figures are a far cry from the majority of predictions but the reasoning used by building people appears to make sense. In the first place nearly all homes constructed during the past three years have been low cost homes. Since 1941 no houses costing over \$6,000 have been allowed which has caused the average cost of the Chicago suburban dwelling (including apartments and hotels) to decline from \$9,010 in 1936 to \$4,815 in 1942. Therefore the pent up demand will be in the more expensive dwellings unless we assume that everyone will live in the so-called 'cracker-box.'

"The contention that the 'new rich' laboring class will provide a great demand for low cost homes is quite possibly an over-rated argument. Perhaps the deduction would be correct in England where the family house or 'cottage' comes first, but here in the U. S. the house is more likely to come last. The old story about more automobiles than bath tubs is certainly not due to lack of income alone—it is an example of what the American public desires most. Increased incomes plus lack of materials to buy has bettered the wage earner's cash position but this same wage earner no doubt needs many consumer articles such as automobiles, refrigerators, radios, etc.

"The prospect for the erection of factory built homes in this area is a popular subject among people interested in home construction. 89% of all answering the survey said that prefabricated houses will not become an important factor in building activity after the war. Here again their reasons are interesting. 85% said that present building codes and labor union regulations would prohibit the erection of factory built homes. 71% said that mass production leads to standardization which results in a house not individual enough for the great majority of home builders. 31% believe there is no economy effected by complete prefabrication and argued that large scale defense housing is proving that site fabrication is not only better but cheaper.

"The trend toward completely automatic and clean heating systems will continue at a greatly accelerated pace. These architects and builders predict:

53% of post war homes will be heated with gas.

23% will be heated with oil.

12% will be heated by stoker.

12% will be heated by a hand fired coal furnace.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Arnold Kruckman's

Washington Letter

★ ★ ★ ★ ★ ★ ★ ★ ★ ★



Will We Ever Cut the Federal Pay Roll?

A SHORT time ago the editor wanted to know what may be seriously under consideration in Washington about throwing out all the war agencies and cutting the Federal payroll to a minimum. It is a nice thought as a basis of speculation and probably most business men would like to know what, if anything is on about this desirable purpose. But the trouble is that, while we have much discussion and many dinner table conversations, it seems very, very unlikely there will be any reduction in the Federal payroll, or that by throwing out one or more war agencies we will be slimming the number of Federal employees.

As a business man you might just as well make up your mind right now that until the Japanese war is well over, the final terminal of the present series of wars, there will be little actual reduction in the expense of maintaining the necessary civil agencies connected with war. This condition will remain essentially true even if some of the agencies fade out, for as one passes into history another takes its place. For instance, it is possible, mind you merely possible, that WPB may gradually sort of dwindle, but the new and yet unestablished Office of War Mobilization and Reconversion, already known here as OWMR, undoubtedly will soon loom in your consciousness as a much greater and powerful agency.

Growth of Payroll

As a matter of melancholy fact it will just be kidding yourself if you hope that the Federal payroll will ever go back to anything like it was before, after these wars are finished. It is an interesting commentary that we hear when FDR became President in 1933 we had a Federal payroll of \$75,000,000, which paid 572,000 Federal employees. In 1934 there were 673,095 people on the Federal payrolls. In 1935, 719,440 persons derived their living from Federal sources, and in 1936 the numbers had grown to 824,259; in 1940, when we had been touched by the war currents, the number was just a little short of 1,000,000. In 1942 there were 2,202,870 on the Federal payrolls; in 1943, 3,095,563. The last count in September, 1944, placed the total something over 3,500,000 at a cost of \$522,000,000 per month, or at the rate of a Federal payroll of over \$6,264,000,000 per year.

As a matter of fact, it is only fair to mention that all figures must be accepted as relative. You may recall we quoted in these columns recently the President's chiding note to Congress in which he pointed out that no two Government agencies had the same

bookkeeping system, and that it is impossible to secure an accurate accounting of Government property quickly. The same reasoning probably is fair in suggesting that these payroll figures may be either too high or too low. They are mostly interesting as a more or less rough approximation of something like primary facts. By the same analogy you may understand why it is not quite possible to give you an accurate report of the number of Government agencies which function at any given time. They breed so quickly and die so slowly that it is unsafe to say at any specific time there are this many.

Here Are the Agencies

As nearly as this reporter can make out on the day this is written there are in existence 257 Federal Government agencies which it would be fair to classify as major parts of Government, and by major is meant those great units which have a sweeping and permanent effect on our lives. We will not attempt to enumerate them except by classification. Under the White House direct control, like a huge brood of chickens or something, there are upwards of 50. These include the war agencies such as WPB, WMC, OPA and ODT. The 435 members of Congress have control of 46 committees with distinct and permanent functions that employ the services of managers known as clerks, secretaries, investigators, economists, accountants, engineers, lawyers and other technologists and specialists. Congress also has a really imposing business setup which includes restaurants, barber shops, beauty parlors, radio rooms, a great telephone exchange, a Botanic Garden, the Library of Congress, an extensive police department of its own, the Government Printing Office, which is the most stupendous publishing enterprise in the world, and the Capitol operating staff of shorthand reporters, sergeant-at-arms, engineers, and many other skilled personnel. It also has special physicians, clergy, and a special staff of architects, and an organization which maintains buildings and grounds in the entire Capital. No attempt has been made to give you a complete detailed report of this vast system which is controlled directly by Congress. The various parts are mentioned as samples to enable you to perceive what a big business this Government really is even in its parts.

Then, of course, there also are the 10 major Administrative departments, usually known as the old-line agencies, those which have been in existence during an historic length of time. They include such De-

partments as State, Treasury, Army, Navy, Post Office, Commerce, Labor, Justice, Interior, Agriculture, each of which is broken down into huge subdivisions, which in turn are each enormous corporate entities employing thousands. And there are 96 agencies known as the Independent Offices, created by Congress and subject to Congressional supervision, while the Executive Offices are subject solely to Executive control. These Independent Offices include the huge Federal Security Agency with its Social Security Board and Public Health Department, and the General Accounting Office; and there is the Federal Trade Commission, and the Interstate Commerce Commission, and the U. S. Tariff Commission and others.

There is also the system of Federal judicial establishments, 25 of them, courts and boards and other units, important to the nation. And finally there is the great system known as the District of Columbia Government with its 50 odd parts and offices. This whole Federal organization is probably today the very biggest business on earth, and with the new responsibilities we have taken on in becoming a more intimate part of Europe and Asia and Africa, and all points north, south, east and west, we simply cannot shrink back to the dimensions of pre-war. If you think your taxes are going to be geared to the old set-up you have just made a very unhappy mistake. You are going to pay higher taxes because you will have to support more Government establishments, more Government officials, and more Government adventures.

Even this summer, while your friends in Congress were talking about reducing Government personnel, the agencies added another 100,000 during June, July and August. Sen. Byrd is quite sincere about reducing the present number by 10 per cent, which would be 350,000 out of the 3,500,000, and at the hearings he will hold after the election he will graphically show that all Government workers lined four abreast would make a column about 500 miles long, or an army stretching well over half the distance between Washington and Chicago. Byrd insists that Civil Service is wrong in asserting cuts have already been made. As a matter of fact, Byrd, perfectly honestly, is wrong himself. The cuts have been made, but the phenomenon is similar to the perpetually refilling pitcher in the classic Greek fable: when they cut out workers in one agency they use the same workers to refill another, and often add a few.

FEA Will Be Important

As near as it can be verified, 400,000 of the total now on the rolls are employed outside of the United States in all parts of the world, and it is logical to assume that many more thousands will be employed in other parts of the world when peace comes. Friend Leo Crowley told his workers the other day that the career of the FEA has just started, that its most brilliant future is still ahead. He said not only that all the thousands presently employed would be needed, but that FEA would need many more. Apparently, FEA will become a very much glorified version of the British Board of Trade. Few people here realize the Board of Trade over there is an Empire Government institution for the sole business of looking out for the industrial and commercial interests of the Empire everywhere.

What we do not grasp is that the British are harmoniously and consistently geared, from the King to the lowliest Civil Servant, to sell the world at the

highest prices, and to buy from the world at the lowest. Its State Department, called the Foreign Office, is part of this system. Heretofore we have not grasped the operation of the system and we have had here an academic and up-nosed State Department which has made the game a sort of exclusive school play for gentlemen and ladies with the equivalent of a Harvard accent with more interest in the diplomatic chess game and snobbish social fastidiousness than in the broad and active problems of the economy of the nation. Some of that was logically due to our lack of all-over interest in foreign trade. But now we are going to be foreign traders whether we like it or not, and we undoubtedly will find the State Department will supply the scenic effects while FEA and similar agencies will have the power to see that we get our share of the breaks in foreign trade. When you realize this you appreciate why FEA will inevitably swell and why other agencies must grow in order to be backstops and to pitch and do the field work for FEA and its large and small brothers. And FEA, be it said, is only a sample of what must happen in relation to other agencies.

Some Going Down — Others Up

The old-line agencies, such as Commerce, Interior, Treasury, Post Office, Agriculture, and others have temporarily shrunk during the war except where they have actively touched the actual war machinery with some special service. Their duties indubitably will expand and they will need many more people. When some of the temporary agencies such as, for instance, the Central Administrative Service with its 4,500 personnel recently folded up, most of its people immediately went over to the old-line Public Buildings Administration and the rest spread into other agencies such as Census, which needs 2,000 right now.

You may sure the same thing will happen when WPB lets out its 1,300 people by November 30, a much advertised action. The National Rehabilitation Board needs those 1,300. Bear in mind, WPB employs 14,657 persons, 9,054 in Washington and 5,603 in the field. OPA, the price-fixing agency, is not expected to quit with the finish of the wars. It seems accepted it will be compelled to continue its work. It is a new agency, a war agency, with 3,600 people in Washington and 35,000 full-time workers in the field, a total of approximately 50,000 persons permanently on the Federal payroll who were not there before Pearl Harbor. In addition, it has from 100,000 to 300,000 "voluntary" workers spread around the country. And there is no bones about the frequently repeated assertion OPA will need more workers AFTER the war. WMC is another war agency which does not expect to give up after the war. It employs 1,300 persons in Washington and 24,600 in the field, 22,000 of whom are employed in the USES offices at an average of about 10 per office. Incidentally, Office of Contract Settlement is looking for 25,000 new people.

It may interest you to learn about some war agencies that are closing. WPB Conservation Division recently was kissed off with a tearful word by WPB Chairman Krug. At its highest speed it had 150 employees. The few that are left, engineers, chemists, metallurgists, have various offers from other agencies. The Board of Investigation and Research recently closed a three years' career of checking transportation rates. Its people were quickly absorbed by other agencies. WPB Rehabilitation Board has been abol-

(Continued on page 100)

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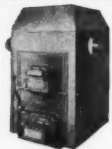
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The Post-War "Miracle" House Delusion

We believe the "Miracle" house bubble should be pricked, so that no family will hold off building or buying just because they can't get a "we-must-have-it-but-we-don't-know-much-about-it" gadget. But it also seems from this survey that the public does want air conditioning and we believe most families have a pretty good idea of what air conditioning is. Unlike electronics air conditioning is not a gadget we surely can supply it in any degree the public can afford. Therefore, of the six things people want post war, by this survey, ours is the only feature available, or practical, or worth while.

A GOOD many surveys of post war buying indicate that new homes are one purchase a great many families are now contemplating. For the construction industry this is encouraging because this preference means large volume construction. But one recent study of post war home building and buying is definitely discouraging because it shows that the public has the idea that for small monthly payments they will buy "miracle" houses in which all the fancy gadgets so widely publicised will be available at no increase in the monthly amortization payment.

This study, sponsored by the National Association of Home Builders, shows that prospective home buyers are convinced a new era of "dream world" houses will start the day hostilities cease. Their expectations, fostered by well-intended but misguided post-war prophets, portend harmful consequences for the building industry in particular and the nation's economy in general.

The popular delusion of the "miracle" house must be dispelled and replaced with the true story of the many practical improvements in design, construction methods, and, interior equipment that will provide more livable houses. Otherwise, the building industry faces the thankless task of dealing with a disillusioned and disappointed public in the immediate post-war years. As a consequence, the industry will not be able to do its full share in providing employment.

The survey was conducted in Atlanta; Chicago; Columbus, Ohio; Hartford, Conn.; Houston; Minneapolis; Pittsburgh; Rochester, N. Y.; and San Francisco. It was confined to the broad middle class with an average annual income of \$3,027, and embraced the middle younger age bracket. Of the families interviewed, 32% owned their homes and 68% were non-owners, but 45% of the total indicated they expected to build or buy a home. The great majority, or 68%, expected to build or buy from one to two years after the war.

More than half of those interviewed expected to get a six room house with two baths, replete with mechanical wonders. Yet, they planned to pay an average of only \$52 per month in financing the mortgage.

Prospective home buyers were asked this question about six projected developments in low-cost homes:

"At the price you intend to pay, do you believe that any of the following 'revolutionary' changes will be available?"

	Percent expecting it to be available at price they are willing to pay	Available how soon after the war
Complete air-conditioning with cooling in the summer as in the movies	72%	10 months
Electronic controls which will make housekeeping far more simple than today.....	81%	11 months
Extensive use of plastics for plumbing, pipes, bathroom fixtures, wall surfaces, etc.....	81%	8 months
Movable partitions which permit the making of one room out of two, or vice versa.....	60%	6 months
Outside walls which can be opened up on a garden or terrace in warm weather.....	54%	8 months
Rooms built as complete units which can be added or removed, depending on family requirements	56%	8 months

In other words, the overwhelming majority, planning to pay an average of only \$52 per month, expect construction features or products which either did not exist in the prewar period, or which were available only to a minority of home buyers in the high income brackets.

Won't Buy Without Miracles

The most revealing part of the survey (which should awaken everyone to a realization of the damage already done by over-selling the public with predictions of impractical things to come) was contained in replies received to this question:

"Would you build or buy a new home if you could not get any or all of the six typical 'revolutionary' changes in home construction?"

Here's what the consumers interviewed had to say:

54% said they would not build or buy if they could not get complete, year-'round air conditioning.

62% said "no" if they could not get electronic controls which would make housekeeping far more simple than today.

53% said "no" if they could not get extensive use of plastics for plumbing, pipes, bathroom fixtures, wall surfaces, etc.

27% said "no" if they could not get movable partitions.

37% said "no" if they could not get outside walls which could be opened up on a garden or terrace.

28% said "no" if they could not get rooms built as separate units which could be added or removed.

(Continued on page 120)

American Artisan Dealers Report on Plans for Selling the Post War Market

MANY consumer studies and forecasts have appeared in the last year purporting to prove the type of heating equipment and the kind of fuel home owners intend to buy after the war. Most of these surveys are well intentioned, but almost without exception these surveys fail to take into consideration one important factor in the sale of heating equipment or fuel—the influence of the warm air heating dealer who's experience dictates certain recommendations the owner is bound to respect. For this reason, the two studies on oil and gas burning equipment published in the September issue and the two studies in this issue are of interest because these studies show ample evidence that AA reader-dealers, at least, have very decided ideas on types of equipment they expect to recommend after the war. Though the Jones' may expect to buy a new furnace and a conversion oil burner and do nothing more to their furnace and may have so expressed themselves to some survey investigator, when the heating dealer gets through explaining the advantages of the complete unit the Jones' idea may be radically altered. It is noteworthy that the complete unit shows a high favor with heating dealers for oil and gas in both new and old houses and the stoker-fired unit a high favor in new houses, but a 50-50 or less standing in old houses. Also of interest in the study on stoker-fired equipment beginning below is the heavy vote for a special stoker department post-war in order to cover both the industrial and domestic sales market. It is also interesting to note that a great many dealers did not sell industrial stokers in 1940, but the letters accompanying the reports seem to indicate that many dealers have established themselves in industrial stoker sales during the last year and expect to continue this activity post-war.

STOKER FIRED EQUIPMENT

State and City	After the War, What Kind of Stoker Heating Do You Think Will Be Bought?				How Many DOMESTIC Stokers Did You Sell in 1940? (DNS = Did Not Sell Stokers) (B = Bituminous, A = Anthracite)	How Many INDUSTRIAL Stokers Did You Sell in 1940? (DNS = Did Not Sell Stokers) (B = Bituminous, A = Anthracite)	How Do You Plan to Sell Stokers Postwar?			Parts Carried in Stock for Service and How Many?					Where Do You Get Your Parts for Service?		
	—Per Cent of Sales—						Special Salesmen	Stoker Department	Separate Organization	Motors	Worms	Tuyers	Transmissions	Blowers	Manufacturer	Jobber	Specialty Repair Co.
	New Houses	Old Houses	Complete Furnace-Stoker Unit	Conversion Stoker													
ALABAMA																	
Montgomery.....	0	100	0	100	40	5	Y	N	N	?	2	2	2	?	...	Y	...
ARIZONA																	
Phoenix.....	.....	.....	.....	.....	0	0	N	N	N	?	?	?	?	?	Y	N	N
ARKANSAS																	
Paragould.....	75	25	80	20	5	.....	...	...	...	1	0	1	0	0	...	Y	...

State and City	After the War, What Kind of Stoker Heating Do You Think Will Be Bought?				How Many DOMESTIC Stokers Did You Sell in 1940? (DNS = Did Not Sell Stokers) (B = Bituminous, A = Anthracite)	How Many INDUSTRIAL Stokers Did You Sell in 1940? (DNS = Did Not Sell Stokers) (B = Bituminous, A = Anthracite)	How Do You Plan to Sell Stokers Postwar?			Parts Carried in Stock for Service and How Many?					Where Do You Get Your Parts for Service?		
	Per Cent of Sales						Special Salesmen	Stoker Department	Separate Organization	Motors	Worms	Tuyeres	Transmissions	Blowers	Manufacturer	Jobber	Specialty Repair Co.
	Complete Furnace-Stoker Unit	Conversion Stoker	Complete Furnace-Stoker Unit	Conversion Stoker													
CONNECTICUT																	
Waterbury.....	10	90	10	90	DNS	DNS	Y	N	N	...	...	...	...	...	...	...	...
DELAWARE																	
Laurel.....	.....	.....	.....	.....	DNS	DNS	N	Y	N	...	...	...	...	...	...	...	...
ILLINOIS																	
Belleville.....	.....	.....	.....	.....	26	DNS	N	N	N	6	6	6	0	0	...	Y	...
Forest Park.....	10	90	25	75	12	DNS	Y	Y	N	0	0	0	0	0	Y	Y	Y
Highland Park.....	.....	.....	.....	.....	6-B	DNS	—(Yes)—	—	—	4	0	2	0	0	Y	Y	Y
Jacksonville.....	25	75	25	75	15-B	DNS	N	N	N	6	0	0	0	0	Y	Y	Y
Kankakee.....	75	25	40	60	6-B	DNS	Y	N	N	1	0	0	0	0	Y	...	...
Lincoln.....	90	10	10	90	20-B	DNS	N	Y	N	4	6	0	0	0	Y	...	...
Mattoon.....	75	25	10	90	2	DNS	Y	Y	N	6	0	0	0	0	Y	N	N
Moline.....	20	80	20	80	23	DNS	—(No)—	—	—	2	0	0	0	0	Y	...	...
Naperville.....	50	50	25	75	5-B	DNS	—(Yes)—	—	—	2	0	0	0	0	Y	...	...
Ottawa.....	.....	.....	.....	.....	25-B	3-B	N	Y	N	6	20	10	1	6	Y	...	...
Paris.....	10	90	10	90	15	DNS	Y	N	N	1	0	0	0	0	Y	Y	...
Peoria.....	.....	.....	.....	.....	10	.....	Y	Y	N	5	0	0	0	0	Y	...	...
Quincy.....	10	90	10	90	?	DNS	N	Y	N	...	...	...	...	...	Y	...	...
Rock Island.....	70	30	70	30	12-B	1-B	...	...	...	2	1	0	0	0	Y	...	...
Sheldon.....	50	50	50	50	3-B	DNS	...	...	...	...	...	...	...	...	Y	Y	...
Wilmette.....	10	90	25	75	3-B	DNS	...	...	...	2	0	3	0	0	Y	...	...
INDIANA																	
Brazil.....	75	25	50	50	DNS	DNS	N	N	N	...	...	...	...	...	...	Y	...
Columbia City.....	.....	.....	.....	.....	DNS	DNS	Y	N	N	...	...	...	...	...	...	Y	...
Evansville.....	25	75	90	10	3	DNS	—(Yes)—	—	—	...	...	...	...	...	Y	...	...
Fort Wayne.....	.....	.....	.....	.....	DNS	10-B	—(Coop.)—	—	—	...	...	...	...	...	Y	...	...
Fort Wayne.....	20	80	50	50	150	3	—(Yes)—	—	—	...	...	...	...	...	Y	...	...
Fort Wayne.....	10	90	10	90	23-B	2-B	N	Y	N	2	3	0	...	...	Y	...	...
Indianapolis.....	25	75	15	85	4-SA	DNS	—(Yes)—	—	—	0	0	0	0	0	Y	...	...
La Porte.....	10	90	10	90	15-SA	2	...	...	...	...	...	...	...	...	Y	...	...
Marion.....	100	0	50	50	20-B	12-B	N	Y	N	0	0	0	0	0	Y	Y	N
Terre Haute.....	50	50	20	80	30-B	DNS	Y	Y	N	2	6	2	2	0	Y	Y	...
Vincennes.....	10	90	5	95	25-B	3-B	Y	N	N	...	...	...	...	...	Y	Y	...
IOWA																	
Cedar Rapids.....	10	90	10	90	5-B	DNS	Y	Y	N	...	...	...	...	...	Y	Y	N
Davenport.....	10	90	5	95	64	6	Y	N	N	4	12	5	Parts	0	Y	Y	N
Davenport.....	15	85	25	75	30-B	2-B	—(Yes)—	—	—	0	2	0	0	0	Y	Y	N
Des Moines.....	20	80	20	80	30-B	10	Y	Y	N	...	...	...	...	...	Y	Y	N
Marshalltown.....	20	80	15	85	70	4	Y	Y	N	...	...	...	...	...	Y	Y	N
Mason City.....	25	75	10	90	20-B	3-B	N	Y	N	2	1	2	0	1	Y	N	N
Mason City.....	25	75	15	85	2-B	0	N	Y	N	0	0	0	0	0	Y	...	...
Sioux City.....	5	95	5	95	5-B	0	Y	N	N	...	...	...	...	...	Y	...	...
Sioux City.....	20	80	10	90	3	DNS	Y	N	N	...	...	...	...	...	Y	Y	...
Spencer.....	85	15	80	20	10	3	...	...	...	...	...	...	...	...	Y	Y	...
Waterloo.....	5	95	20	80	DNS	.....	Y	N	N	...	...	...	...	...	Y	...	...
Waterloo.....	90	10	20	80	100-B	3-B	Y	Y	N	10	6	5	4	5	Y	N	N
Webster City.....	.....	.....	.....	.....	7-B	DNS	—(Yes)—	—	—	7	0	0	0	0	Y	...	...
KENTUCKY																	
Lexington.....	75	25	50	50	30-A	DNS	Y	N	N	1	4	...	1	...	Y	...	...
Louisville.....	50	50	20	80	25-SA	DNS	Y	Y	N	0	0	0	0	0	Y	...	...
MASSACHUSETTS																	
Boston.....	25	75	75	25	6-A	DNS	...	...	...	...	...	...	...	...	Y	N	N
Worcester.....	10	90	5	95	2-B	4-B	N	N	N	...	...	...	...	...	Y	N	N
MICHIGAN																	
Adrian.....	40	60	50	50	26-B	DNS	N	Y	...	1	1	3	0	0	N	Y	N
Ann Arbor.....	25	75	45	55	15-SA	2	Y	?	N	1	1	3	1	0	Y	Y	Y
Dearborn.....	25	75	25	75	40-B	20-B	...	Y	...	50	4	4	0	4	Y	Y	Y
Detroit.....	10	90	5	95	20-B	DNS	—(Yes)—	—	—	...	...	...	...	...	...	...	...
Detroit.....	85	15	15	85	DNS	DNS	Y	...	...	...	...	...	...	...	Y	...	...
Escanaba.....	15	85	15	85	25-B	3	—(Yes)—	—	—	2	0	6	0	0	Y	...	...
Flint.....	10	90	10	90	15-B	DNS	—(Yes)—	—	—	4	3	6	0	0	Y	N	N
Flint.....	(Very few)	50	50	...	25	5	—(Yes)—	—	—	6	4	4	0	0	Y	Y	Y
Flint.....	60	40	30	70	10	DNS	—(Yes)—	—	—	0	0	0	0	0	Y	Y	Y
Highland Park.....	.....	.....	.....	.....	DNS	DNS	...	Y	...	...	...	...	...	...	...	...	...
Kalamazoo.....	75	25	5	95	6	DNS	—(Yes)—	—	—	4	1	4	2	0	Y	...	...
Kalamazoo.....	50	50	10	90	55-SA	DNS	Y	N	N	4	3	...	Parts	3	Y	N	N
Lansing.....	50	50	50	50	12-B	2-B	Y	Y	N	4	4	4	2	0	Y	N	N
Midland.....	50	50	90	10	25-B	6-B	?	N	N	0	0	0	0	0	Y	N	N
Muskegon.....	50	50	5	95	6-B	DNS	—(Yes)—	—	—	1	0	1	0	0	Y	Y	...
Saginaw.....	25	75	25	75	30-B	DNS	—(Yes)—	—	—	4	3	6	0	0	Y	...	Y
Saginaw.....	100	0	50	50	3-B	1-B	...	Y	...	2	2	2	2	...	Y	Y	...
Sebewaing.....	.....	.....	.....	.....	.....	.....	...	...	...	...	...	...	...	...	...	...	...
MINNESOTA																	
Minneapolis.....	.....	.....	.....	.....	15 ¹	2 ¹	—(No)—	—	—	...	...	...	...	...	Y	Y	Y
Tracy.....	50	50	50	50	6	2	—(Yes)—	—	—	3	0	0	0	0	Y	Y	Y
MISSOURI																	
Kansas City.....	75	25	5	95	15-B	DNS	Y	Y	N	0	0	0	0	2	Y	Y	...
St. Louis.....	.....	.....	.....	.....	22-B	DNS	...	Y	...	6	16	0	0	0	Y	Y	Y
St. Louis.....	.....	.....	.....	.....	20	2	...	Y	...	...	...	...	...	...	...	...	...
St. Louis.....	20	80	10	90	40-B	DNS	Y	Y	N	6	6	0	2	2	Y	...	...

State and City	After the War, What Kind of Stoker Heating Do You Think Will Be Bought?				How Many DOMESTIC Stokers Did You Sell in 1940? (DNS = Did Not Sell Stokers) (B = Bituminous, A = Anthracite)	How Many INDUSTRIAL Stokers Did You Sell in 1940? (DNS = Did Not Sell Stokers) (B = Bituminous, A = Anthracite)	How Do You Plan to Sell Stokers Postwar?			Parts Carried in Stock for Service and How Many?						Where Do You Get Your Parts for Service?		
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	Complete Furnace-Stoker Unit	Conversion Stoker	Complete Furnace-Stoker Unit	Conversion Stoker														
NEBRASKA																		
Lincoln.....	75	25	10	90	12-B	DNS	Y	Y	N	4	0	0	0	0	Y	Y	N	
Lincoln.....	90	10	35	65	3-A	DNS	Y	Y	N	0	0	0	0	0	Y	...	...
North Platte.....	40	60	20	80	20-B	2-B	Y	...	...	Y	Y	Y	0	0	Y	...	...
Omaha.....	.....	.....	.....	.....	3	DNS	...	...	...	0	0	0	0	0	...	Y	Y
Omaha.....	40	60	10	90	10	2	N	Y	N	10	20	100	6	5	N	Y	N	
Omaha.....	50	50	25	75	6-B	2-B	—(Yes)	—	—	2	1	0	1	0	...	Y	...	
NEW HAMPSHIRE																		
Manchester.....	60	40	25	75	6-B&A	6-B	Y	Y	...	12	12	100	6	0	Y	...	...
NEW YORK																		
Corning.....	50	50	0	100	DNS	DNS	—(Yes)	—	—	0	0	0	0	0	...	...	...
Newburgh.....	100	0	50	50	DNS ²	DNS	...	...	...	...	...	...	...	...	...	...	...
Olean.....	.....	.....	.....	.....	?	?	—(Yes)	—	—	...	...	...	...	...	Y	...	...
Rochester.....	.....	.....	.....	.....	DNS	DNS	—(Yes)	—	—	...	...	...	...	...	...	...	...
Syracuse.....	30	70	30	70	3-A	DNS	Y	Y	...	...	...	...	...	...	Y	...	...
NORTH DAKOTA																		
Minot.....	25	75	25	75	4-Lig.	DNS	—(Yes)	—	—	0	0	0	0	0	Y	...	...
Wahpeton.....	100	0	50	50	10-B	2-B	Y	...	...	0	0	0	0	0	...	Y	...
OHIO																		
Ashland.....	5	95	3	97	6-B	DNS	—(Yes)	—	—	1	1	1	0	0	Y	N	N	
Big Prairie.....	10	90	10	90	6	DNS	Y	...	...	2	2	0	0	0	...	Y	N
Cleveland.....	?	?	?	?	12	DNS	Y	...	...	0	0	0	0	0	N	...	...
Cleveland.....	25	75	25	75	12-SA	DNS	—(Yes)	—	—	...	...	...	...	...	...	...	...
Columbus.....	2	98	1	99	100	30	Y	...	...	8	5	20	...	...	Y	...	...
Columbus.....	10	90	5	95	100-B	DNS	—(Yes)	—	—	12	24	50	6	2	Y	...	...
Columbus.....	10	90	10	90	90	DNS	Y	Y	C	2	2	2	0	0	Y	...	...
Dayton.....	50	50	20	80	5	DNS	N	N	C	0	0	0	0	0	Y	...	...
Findlay.....	?	?	25	75	12-B	DNS	Y	...	...	1	2	24	...	1	Y	...	...
Greenville.....	.....	.....	.....	.....	6	DNS	—(Yes)	—	—	...	...	...	...	...	...	Y	...
Hamilton.....	50	50	50	50	23-B	DNS	...	Y	...	0	0	0	0	0	N	Y	N	
Mansfield.....	70	30	70	30	DNS	DNS	—(Yes)	—	—	1	0	1	0	0	Y	...	...
Sandusky.....	20	80	10	90	60-B	5	Y	...	...	1	2	2	0	2	Y	...	...
Sidney.....	10	90	10	90	6	DNS	N	N	N	...	...	...	...	...	Y	Y	...
Springfield.....	10	90	10	90	12	DNS	—(Yes)	—	—	2	0	0	0	0	Y	...	...
Toledo.....	50	50	10	90	125-B	25-B	—(Yes)	—	—	25	9	9	1	0	Y	...	...
PENNSYLVANIA																		
Clearfield.....	20	80	0	100	12-B	4-B	Y	Y	N	1	0	0	0	0	Y	N	N	
Corry.....	10	90	25	75	10-SA	2-B	—(Yes)	—	—	0	3	2	0	0	...	Y	Y	
Hollidaysburg.....	0	100	0	100	20-B	10-B	Y	...	N	0	0	0	0	0	...	Y	...	
Meadville.....	.....	.....	.....	.....	DNS	DNS	N	N	N	0	0	0	0	0	...	Y	...
Mechanicsburg.....	50	50	25	75-A	4	DNS	N	N	Y	0	0	0	0	0	...	Y	...	
Pittsburgh.....	0	100	0	100	4-B	DNS	N	N	N	0	0	0	0	0	...	Y	...	
Reading.....	20	80	5	95	10-A	4-B	...	Y	...	5	2	10	3	0	Y	...	...
Rimersburg.....	75	25	75	25	30-B	3-B	—(Yes)	—	—	2	1	0	0	0	Y	...	...
Tarentum.....	5	95	5	95	2-B	1-B	—(Yes)	—	—	2	0	2	0	1	Y	...	...
SOUTH DAKOTA																		
Rapid City.....	100	0	50	50	2	DNS	...	Y	...	0	0	0	0	0	...	Y	...	
Yankton.....	100	0	10	90	2	DNS	N	Y	N	...	...	...	...	...	...	...	...
WASHINGTON																		
Seattle.....	60	40	60	40	300-B	DNS	...	Y	...	6	6	6	2	1	Y	...	...
WEST VIRGINIA																		
Morgantown.....	(Natural gas is cheap)				6-SA	DNS	N	N	N	3	...	...	...	...	...	Y	...
WISCONSIN																		
Beaver Dam.....	.....	.....	5	95	3	DNS	N	...	...	0	0	0	0	0	...	...	...
Jackson.....	25	75	25	75	10-B	2-B	—(Yes)	—	—	1	0	0	1	0	Y	...	...
Madison.....	50	50	10	90	DNS	DNS	N	N	24	...	...	...	...	...	...	...	...
Milwaukee.....	50	50	25	75	DNS	DNS	N	N	N	...	...	...	...	...	...	...	...
Milwaukee.....	50	50	20	80	23-B	3-B	Y	Y	N	3	6	15	0	0	Y	Y	Y	
Milwaukee.....	80	20	10	90	20-B	2-B	Y	Y	N	2	0	0	0	0	Y	Y	Y	
Rhineland.....	60	40	60	40	12	3	...	...	Y	4	0	0	0	0	Y	...	...
Shawano.....	25	75	25	75	7-B	1-B	—(Yes)	—	—	Y	0	Y	0	0	N	Y	N	
Superior.....	40	60	40	60	5-B ³	DNS	—(Yes)	—	—	...	...	...	...	...	...	...	...
Two Rivers.....	.....	.....	20	80	13-B	14-B	Y	N	N	...	...	...	...	...	Y	...	...
Wausau.....	80	20	40	60	2	DNS	—(Yes)	—	—	2	0	0	0	0	N	Y	...	

Notes

¹ = Sell but do not install—co-operate with coal companies.

² = Does sheet metal work for dealers.

⁴ = Heating department.

⁵ = Subcontract stokers through fuel companies who offer complete service.

THE study on furnace blower post-war sales plans beginning below, continues the favoritism of the complete unit in new house sales shown in previous studies of oil, gas and stoker-fired equipment, but for old houses there is a substantial vote shown for the conversion blower in old houses. The thinking seems to be that if the coal furnace is in good condition and if minor alterations to the duct system will provide proper air distribution, a conversion blower is the cheapest way the homeowner can get winter air conditioning. Therefore, many dealers reporting state they see substantial sales for conversion blowers in old houses after the war. The column asking how many blowers could be sold if blowers are released shows a heavy backlog of prospects, enough in many cases to keep the dealer busy for a year. Note the surprising number of dealers with 50 and more prospects for blowers.

FURNACE BLOWERS

State and City	After the War, What Type of Forced Air Heating Do You Think Will Be Bought? Per Cent of Sales				If Available How Many CONVERSION Blowers Could You Sell in 1944?	How Many Spare Motors Do You Keep in Stock for Service and What Horsepower?	Do You Have Any Trouble with Bearings?	How Many Belts Do You Replace a Year?
	New Houses		Old Houses					
	Complete Winter Air Conditioning Unit	Conversion Blower	Complete Winter Air Conditioning Unit	Conversion Blower				
ALABAMA								
Montgomery.....	100	0	40	60	30	6— $\frac{1}{4}$, $\frac{1}{2}$	yes	12
ARIZONA								
Phoenix.....	100	0	60	40	.....	6— $\frac{1}{4}$ to $\frac{1}{2}$	yes	7
Tucson.....	90	10	90	10	6	24— $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	no	50
ARKANSAS								
Paragould.....	75	25	80	20	12	1— $\frac{1}{2}$	no	0
CALIFORNIA								
Eureka.....	100	0	90	10	9	2— $\frac{1}{4}$, $\frac{1}{2}$	little	2
Martinez.....	100	0	100	0	50	3— $\frac{1}{4}$, $\frac{1}{2}$	no	25
Oakland.....	100	0	90	10	.....	100—1/6 to 3	no	.....
San Mateo.....	100	0	80	20	10	1— $\frac{1}{4}$	no	1
CONNECTICUT								
Waterbury.....	100	0	100	0	0 ¹	2—1/6, $\frac{1}{4}$	no	2
DELAWARE								
Laurel.....	100	0	50	50	25	several—1/6	no	3
ILLINOIS								
Belleville.....	.....	.....	.....	.....	50	6— $\frac{1}{4}$, 1/6	seldom	35
Bloomington.....	.....	.....	.....	.....	10	0	no	0
Chicago.....	90	10	50	50	12	few— $\frac{1}{6}$, 1/6, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$	some	50
Chicago.....	100	0	75	25	many	10—1/6, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$	seldom	few
Elmhurst.....	99	1	50	50	6	0— $\frac{1}{4}$, 1/6, $\frac{1}{2}$	no	4
Forest Park.....	90	10	90	10	25	1— $\frac{1}{2}$	no	6
Highland Park.....	.....	.....	.....	.....	12	4—1/6, $\frac{1}{4}$	yes	12
Jacksonville.....	75	25	75	25	25	6— $\frac{1}{4}$, $\frac{1}{2}$	no	15
Kankakee.....	60	40	50	50	10	1— $\frac{1}{4}$	no	0
Lincoln.....	80	20	10	90	35	4— $\frac{1}{4}$	no	10
Mattoon.....	98	2	85	15	25	7—1/6, $\frac{1}{4}$, $\frac{1}{2}$	no	6
Moline.....	100	0	30	70	30	4— $\frac{1}{4}$	no	6
Naperville.....	90	10	90	10	12	3—1/6, $\frac{1}{4}$	some	6
Ottawa.....	.....	.....	.....	.....	25	6—1/6, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$	no	36
Paris.....	20	80	10	90	.....	2	no	.....
Peoria.....	.....	.....	.....	.....	20	4—1/6, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$	.....	25
Rock Island.....	70	30	70	30	30	2— $\frac{1}{4}$	.....	40
Sheldon.....	90	10	50	50	10	0	no	3
Wilmette.....	90	10	70	30	24	15—1/6, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$	no	24
INDIANA								
Brazil.....	75	25	50	50	12	0	no	1
Columbia City.....	75	25	50	50	10	0	.....	0
Evansville.....	75	25	75	25	6	0	.....	0
Fort Wayne.....	90	10	70	30	25	12—1/6, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$	rare	12
Fort Wayne.....	90	10	60	40	30	0	no	few
Fort Wayne.....	90	10	25	75	50	4— $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$	yes	50
Fort Wayne.....	75	25	50	50	12	0	rare	6
Hammond.....	50	50	40	60	25	5—1/6, $\frac{1}{4}$, $\frac{1}{2}$	seldom	few
Indianapolis.....	70	30	50	50	38	1— $\frac{1}{4}$	no	25
La Porte.....	90	10	80	20	25	3— $\frac{1}{4}$	seldom	10
Marion.....	100	0	80	20	25	8—1/6, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$	no	6
Vincennes.....	50	50	10	90	25			

State and City	After the War, What Type of Forced Air Heating Do You Think Will Be Bought? Per Cent of Sales				If Available How Many CONVERSION Blowers Could You Sell in 1944?	How Many Spare Motors Do You Keep in Stock for Service and What Horsepower?	Do You Have Any Trouble with Bearings?	How Many Belts Do You Replace a Year?
	New Houses		Old Houses					
	Complete Winter Air Conditioning Unit	Conversion Blower	Complete Winter Air Conditioning Unit	Conversion Blower				
IOWA								
Cedar Rapids.....	100	0	0	100	12	0	no	4
Davenport.....	80	20	30	70	50	4-1/4, 1/2, 3/4	yes	16
Davenport.....	75	25	50	50	10	.....	.....	.....
Des Moines.....	90	10	60	40	5	10-1/6, 1/4, 1/2, 3/4	yes	150
Marshalltown.....	70	30	70	30	25	0	yes	50
Mason City.....	95	5	50	50	5	3-1/6, 1/4	no	10
Mason City.....	100	0	75	25	10	2-1/6, 1/4	no	5
Sioux City.....	100	0	10	90	50	0	no	0
Sioux City.....	85	15	25	75	24	2-1/4	little	.....
Spencer.....	50	10	50	50	10	0-1/6, 1/4	yes	12
Waterloo.....	80	20	50	50	10	0	no	5
Waterloo.....	90	10	40	60	25	10-1/4, 1/2	yes	200
Webster City.....	.....	.....	.....	.....	several	3-1/6, 1/4	no	several
KENTUCKY								
Lexington.....	90	10	75	25	38	10-1/6, 1/4, 1/2, 3/4	no	25
Louisville.....	100	0	10	90	10	0	no	5
MASSACHUSETTS								
Boston.....	90	10	60	40	15	4-1/4, 1/2, 3/4	little	12
North Scituate.....	70	30	40	60	10	4-1/4, 3/4	little	12
MICHIGAN								
Adrian.....	10	90	10	90	10	1-1/6	yes	6
Ann Arbor.....	50	50	35	65	30	0-1/2, 1/5, 1/6, 1/4	some	10
Battle Creek.....	100	0	75	25	15	4-1/4, 1/2, 3/4	little	.....
Dearborn.....	90	10	50	50	50	50-1/2, 3/4	some	200
Detroit.....	100	0	20	80	20	0	.....	.....
Detroit.....	100	0	90	10	25	10-1/6, 1/4, 1/2	no	5
Escanaba.....	50	50	20	80	18	2-1/6, 1/4	little	10
Flint.....	100	0	75	25	40	8-1/16-1/2	no	8
Flint.....	80	20	50	50	plenty	8-1/4-1/2	little	25
Grand Rapids.....	75	25	25	75	6	3-1/6, 1/4	yes	0
Highland Park.....	60	40	80	20	30	10-1/4	yes	50
Kalamazoo.....	90	10	50	50	20	2	little	1
Kalamazoo.....	95	5	50	50	10	10-1/4, 1/2	no	3
Lansing.....	50	50	90	10	20	3-1/6, 1/4, 1/2	some	few
Midland.....	90	10	90	10	20	10-1/6, 1/2	yes ¹	20
Muskegon.....	75	25	50	50	50	3-1/6, 1/4, 1/2	little	40
New Buffalo.....	.....	.....	.....	.....	15	1-1/4	no	2
Saginaw.....	90	10	80	20	25	4-1/6, 1/4, 1/2, 3/4	yes	12
Saginaw.....	75	25	25	75	25	4-1/4, 1/2	yes	50
Sebewaing.....	100	0	100	0	10	3-1/4	no	6
MINNESOTA								
East Grand Forks.....	100	0	50	50	75	3-1/4	little	12
Minneapolis.....	85	15	50	50	25	9-1/6, 1/4, 1/2	yes	seldom
Tracy.....	80	20	70	30	10	2-1/4, 1/2	yes	12
MISSOURI								
Joplin.....	100	0	75	25	20	2-1/4, 1/2	no	2
Kansas City.....	85	15	30	70	63	3-1/4, 1/2	some	.....
Kansas City.....	100	0	50	50	75	5-1/4	little	14
St. Louis.....	.....	.....	.....	.....	18	6-1/6, 1/4	little	45
St. Louis.....	100	0	75	25	.....	10-1/6, 1/4, 1/2, 3/4	little	13
St. Louis.....	75	25	50	50	50	12-1/6, 1/4, 1/2, 3/4	little	100
MONTANA								
Great Falls.....	100	0	90	10	12	6-1/4, 1/2	some	50
NEBRASKA								
Lincoln.....	90	10	25	75	50	6-1/4, 1/2, 3/4	no	12
Lincoln.....	80	10	80	20	20	0	no	12
North Platte.....	80	20	65	35	24	5-1/6, 1/4	some	10
Omaha.....	.....	.....	.....	.....	25	0	yes	12
Omaha.....	95	5	90	10	25	6-1/6, 1	yes	200
Omaha.....	100	0	75	25	10	12-1/6, 1	yes	10
Scottsbluff.....	90	10	70	30	3	4-1/10, 1/2, 1/6, 1/4	little	15
NEW HAMPSHIRE								
Manchester.....	80	20	80	20	12	10-1/6-2	seldom	43
NEW JERSEY								
Bogota.....	80	20	60	40	75	6-1/6, 1/4	no	12
Penns Grove.....	80	20	20	80	25	3-1/2, 1/4, 1	no	10
NEW YORK								
Buffalo.....	95	5	75	25	45	6-1/4, 1/2, 3/4	seldom	6
Buffalo.....	90	10	80	20	50	10-1/6, 1/4, 1/2	no	25
Corning.....	80	20	25	75	15	2-1/4	no	6
Elmira.....	75	25	50	50	0 ¹	2-1/4	no	4
Kingston.....	95	5	70	30	.....⁴	2-1/6	no	1/2
Newburgh.....	90	10	50	50	15	0	no	5
Olean.....	90	10	50	50	10	5-1/6, 1/4, 1/2	no	few
Rochester.....	.....	.....	.....	.....	30 ⁵	2-1/4	.....	.....
Rochester.....	90	10	40	60	6	0	.....³	.....
Rochester.....	70	30	20	80	8	0	no	1
Rochester.....	75	25	15	85	30	.....	yes	6

State and City	After the War, What Type of Forced Air Heating Do You Think Will Be Bought? Per Cent of Sales				If Available How Many CONVERSION Blowers Could You Sell in 1944?	How Many Spare Motors Do You Keep in Stock for Service and What Horsepower?	Do You Have Any Trouble with Bearings?	How Many Belts Do You Replace a Year?
	New Houses		Old Houses					
	Complete Winter Air Conditioning Unit	Conversion Blower	Complete Winter Air Conditioning Unit	Conversion Blower				
NORTH DAKOTA								
Minot.....	75	25	50	50	6	2-1/6, 1/4	no	10
Wahpeton.....	100	0	75	25	6	0	yes	12
OHIO								
Ashland.....	90	10	20	80	15	1-1/4	seldom	3
Barberton.....	70	30	40	60	50	4-1/2	no	25
Big Prairie.....	25	75	25	75	6	6-1/6-1	little	50
Canton.....	100	0	10	90	3	varies-1/6, 1/4	no	.....
Cleveland.....	?	?	?	?	?	0	no	2
Cleveland.....	50	50	50	50	100	.....	yes	50
Columbus.....	95	5	75	25	25	6-1/4, 1/2, 1/2	no	25
Columbus.....	90	10	25	75	.....	12-1/6-1/4	little	18
Columbus.....	90	10	50	50	100	several-1/4	yes	8
Dayton.....	70	30	50	50	150	0	.....	.....
Dover.....	90	10	90	10	20	2-1/4, 1/2	no	4
Findlay.....	.....	.....	.....	.....	15	2-1/4	no	25
Greenville.....	.....	.....	.....	.....	15	1-1/2	no	.....
Hamilton.....	95	5	50	50	15	0	no	10
Lakewood.....	?	?	75	25	50	2-1/4	no	8
Mansfield.....	50	50	10	90	?	1-1/4	no	.....
Middletown.....	60	40	50	50	25	3-1/2	no	.....
Sandusky.....	.....	.....	.....	.....	15	0	no	6
Sidney.....	80	20	90	10	25	1-1/4	no	1
Springfield.....	50	50	20	80	25	3-1/4, 1/2, 1/2	no	12
Toledo.....	90	10	50	50	75	45-1/6, 1	yes	250
Youngstown.....	70	30	50	50	40	6-1/4, 1/2, 1/2	yes?	.....
OKLAHOMA								
Oklahoma City.....	100	0	50	50	55	7-1/6-3/4	some	100
Tulsa.....	99	1	50	50	25	6-1/4, 1/2, 1/2	yes	20
PENNSYLVANIA								
Clearfield.....	99	1	35	65	5	2-1/4, 1/4	no	4
Corry.....	10	90	5	95	25	2-1/4, 1/2	yes?	3
Erie.....	80	20	40	60	25	4-1/4	no	6
Lafayette.....	100	0	50	50	10	2-1/4, 1/2	no	2
Meadville.....	50	50	70	30	.....	.....	.....	.....
Pittsburgh.....	90	10	50	50	25	5-1/5, 1/4	no	12
Pittsburgh.....	80	20	80	20	50	6-1/4-1/2	no	0
Pittsburgh.....	99	1	95	5	50	28-1/15, 1/4, 1/4	seldom?	25
Rimersburg.....	50	50	50	50	24	12-1/6-1/2	yes	100
Sharon.....	50	50	25	75	6	.....	.....	.....
Tarentum.....	60	40	60	40	15	6-1/4-1/2	some	15
SOUTH DAKOTA								
Rapid City.....	100	0	50	50	10	0	no	0
Yankton.....	90	10	50	50	25	3-1/6, 1/4, 1/2	yes	12
TEXAS								
Dallas.....	100	0	100	0	0	12-1/4-10	little	?
Houston.....	100	0	100	0	0	23-1/5, 1 1/2	yes	200
San Antonio.....	99	1	99	1	50?	5-1/6, 1/4	no	4
VERMONT								
Lyndonville.....	100	0	20	80	6	2-1/4, 1/2	no	.....
WASHINGTON								
Seattle.....	90	10	50	50	1,000	6-1/10, 1/6, 1/4, 1/2	little	100
WEST VIRGINIA								
Morgantown.....	60	40	20	80	20	3-1/4	little	20%
WISCONSIN								
Beaver Dam.....	100	0	50	50	10	0	little	0
Jackson.....	50	50	25	75	15	3-1/6, 1/4	little	12
Madison.....	100	0	50	50	35	5-1/6, 1/2	some	10
Milwaukee.....	100	0	50	50	8	0	no	few
Milwaukee.....	75	25	60	40	75	10-1/6, 1/4, 1/2, 1/2, 1/2	some	10
Milwaukee.....	60	40	50	50	75	4-1/6, 1/4, 1/2	little	58
Rhinelander.....	75	25	60	40	50	6-1/6, 1/4, 1/2	no	25
Shawano.....	75	25	50	50	10	4-1/6, 1/4	yes	6
Superior.....	80	20	.....	.....	20	2-3/4	no	3
Waukesha.....	50	50	50	50	6	1-1/4	no	.....
Wausau.....	80	20	70	30	25	2-1/6, 1/4	no	1
WYOMING								
Sheridan.....	90	10	10	90	0	0	no	5

Notes

- ¹ = Do not believe in conversion jobs.
- ² = This is a strong forced-air territory.
- ³ = Not properly oiled.
- ⁴ = Not interested under present labor conditions.
- ⁵ = Complete units only.
- ⁶ = Belt life ordinarily is four years.
- ⁷ = Starting switch also.
- ⁸ = If gas can be used.
- ⁹ = When available.

Fuel Savings Resulting From Closing Off Rooms

This article is reprinted from Bulletin 348, University of Illinois Engineering Experiment Station, Urbana. The data proves fuel saving is not proportional to space closed off, or to floor area. But we do save some fuel in a warm air heated house—boiler heated houses do not show any fuel saving.

THE average of the air temperatures in all of the rooms being heated (Residence A—Research Residence) was maintained at approximately 72 deg. F. at the 60-in. level both day and night. The windows, including those in bedrooms, remained closed at all times. Observations of weather, indoor room air temperatures, room relative humidities, and other inci-

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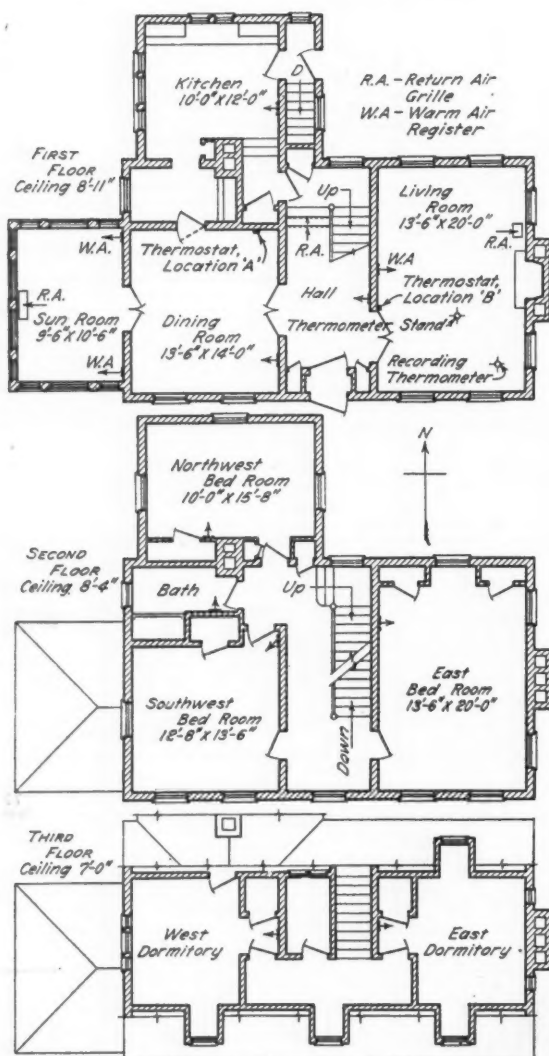


FIG. 1. FLOOR PLANS OF RESIDENCE A

dental data were made daily at 7:00 a. m., 11:00 a. m., 4:00 p. m., and 10:00 p. m. Complete data were obtained for each 24-hr. test period on the gas consumption, the total integrated time of operation of the fan and of the gas valve, and the total electrical input to the fan motor and the gas valve, and the total number of on-periods of both the circulating fan and the gas valve. Daily observations were made of the volume of air circulated and the fan speed. In addition, continuous records of temperatures, draft in chimney, and CO₂ in flue gas were obtained for each 24-hr. period. By means of the draft hood at the flue outlet of the furnace, basement air was admitted into the chimney, and the draft as measured over the gas flame was substantially zero in pressure at all times. For each series of tests, data were obtained over a wide range of outdoor weather conditions.

The operating conditions maintained in the three test series, in which portions of Residence A were closed off, were as follows:

Schedule of Tests in Residence A

Operating conditions common to all three test series:

Fan.—

Two speed; low speed at 358 r.p.m., high speed* at 535 r.p.m.

Bonnet Thermostat Setting.—

Low speed cut-in at 90 deg. F.; cut-out at 80 deg. F. High speed cut-in at 120 deg. F.; cut-out at 95 deg. F.

Gas Input.—

High-low flame; low input, 59 cu. ft. per hr.; high input,* 93 cu. ft. per hr.

Room Thermostat.—

Located in dining room at 60-in. level.

*High flame and high speed were obtained only for outdoor temperatures colder than about 5 deg. F.

TABLE 1
FLOOR AREAS, ROOM VOLUMES, AND HEAT LOSSES FOR ROOMS NOT HEATED IN RESIDENCE A

Room	Floor Area* sq. ft.	Room Volume* cu. ft.	Calculated Heat Losses		
			Conventional, Room Heated B.t.u. per hr.	Adjusted, Room Not Heated B.t.u. per hr.	Reduction per cent
1	2	3	4	5	6
Sun room	145	1156	9 485	2405	74.6
E. bedroom	252	2144	5 905	3780	36.0
E. dormitory	140	868	3 650	1310	64.1
All 3 rooms	537	4168	19 045	7495	60.6

*Floor areas and volumes of closets not included.

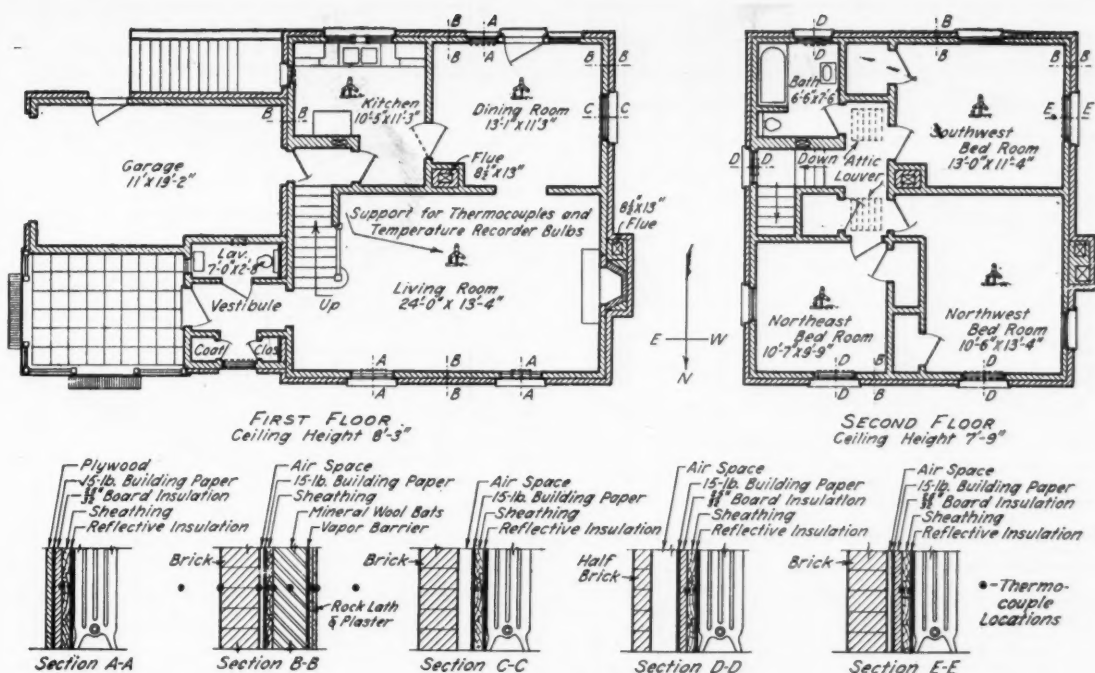


FIG. 3. FLOOR PLANS OF RESIDENCE B

Series 1-42.—

All rooms in Residence heated day and night.
Air delivery, 810 c.f.m. at low speed of fan.
Energy input to fan motor, 177.3 watts.*

Series 3-42.—

Same as series 1-42, except that sun room was not heated.

Registers, return grilles, and door to sun room closed.

Air delivery, 745 c.f.m. at low speed of fan.
Energy input to fan motor, 175.3 watts.*

Series 4-42.—

Same as Series 1-42, except that sun room, east bedroom, and east dormitory were not heated.

Registers, grilles, and doors to all three rooms closed.

Air delivery, 730 c.f.m. at low speed of fan.
Energy input to fan motor, 175 watts.*

It may be observed that in series 1-42 all of the rooms in the house were heated; in series 3-42 the sun room doors were closed and felt weatherstripping applied to the edges, the register valves in the two warm-air registers were closed, and the return-air grille in the room was covered with paper weighted down by a rug; in series 4-42 the sun room, east bedroom on the second story, and east dormitory on the

*Energy input to fan motor includes that required to overcome resistance of venturi air-measuring section, which introduced a pressure loss of about 0.085 in. for an air delivery of 1211 c.f.m.

TABLE 2
FLOOR AREAS, ROOM VOLUMES, AND HEAT LOSSES FOR ROOMS NOT HEATED IN RESIDENCE B

Room	Floor Area* sq. ft.	Room Volume* cu. ft.	Calculated Heat Losses		
			Conventional, Room Heated B.t.u. per hr.	Adjusted, Room Not Heated B.t.u. per hr.	Reduction per cent
1	2	3	4	5	6
N.E. bedroom	1032	800	4 385	2180	50.4
N.W. bedroom	1481	1148	4 945	2410	51.3
S.W. bedroom	1430	1108	5 250	2965	43.5
All 3 rooms	3943	3056	14 580	7555	48.1

*Floor areas and volumes of closets not included.

third story were all closed and not heated. No adjustments were otherwise made in dampers or register valves in the remainder of the duct system, or in the control settings.

The floor areas, room volumes, and calculated heat losses for the rooms closed off and not heated are shown in Table 1. In column 4 are shown the heat loss calculations for the rooms, based on an indoor-outdoor temperature difference of 80 deg. F. These values have been designated as "conventional" heat loss. In column 5 are shown the calculated heat losses from the rooms closed off, basing the computations on the calculated equilibrium temperature in the unheated rooms. These values have been designated as "adjusted" heat loss.

Method of Conducting Tests in Residence B

During all tests made in Residence B (LBR Residence) the temperature of the air 30 in. above the floor in the heated portion of the house was maintained constant at approximately 72 deg. F., both day and night. The windows, including those in bedrooms, remained closed at all times. At 7:00 a.m., 11:00 a.m., 5:00 p.m., and 10:00 p.m., observations were recorded of the room-air temperatures 3 in., 30 in., and 60 in. above the floor and 3 in. below the ceiling, of the air temperature in the basement and the attic, and of the relative humidity in the rooms. Complete daily records were also made of the operating time, the number of cycles, and the power consumption of the oil burner and circulator, and of the weight of oil consumed. Continuous records were made of the stack temperature, the CO₂ in the flue gas, the temperature of the water at the boiler outlet and return, and the outdoor air temperature. Other daily observations included the total amount of electricity and gas used in the house, the number of occupants, and general weather conditions.

Two series of tests were made which differed only in the number of rooms being heated. In series K all rooms in the house were heated day and night, and all room doors were left open. In series L the radiators in the three second-story bedrooms were turned off,

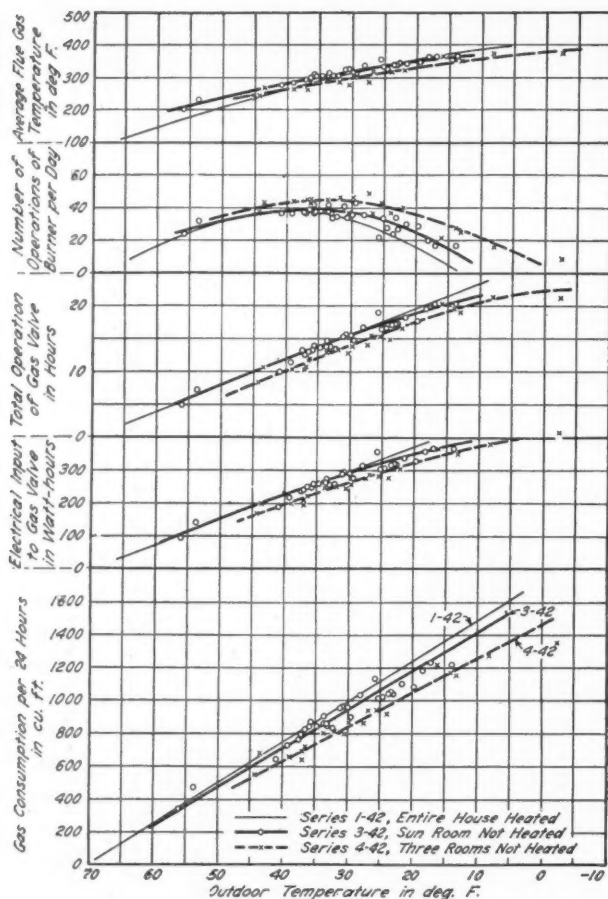


FIG. 5. FUEL CONSUMPTION IN RESIDENCE A AS AFFECTED BY CLOSING OF ROOMS

and the bedroom doors were kept closed. As the bedroom doors fit rather tightly except for the $\frac{3}{4}$ -in. crack along the bottom, no felt weatherstrip was used. With the windows closed it was hardly possible that an appreciable interchange of air between the heated and unheated room could occur through the cracks around the door. Both the results of the test and computations based on probable pressure differences indicated that if anything such an interchange occurred from the heated to the unheated room rather than in the opposite direction.

The floor areas, room volumes, and heat losses for the rooms not heated in series L are given in Table 2. The methods used in computing the heat losses shown in this table were identical to those used in computing the values in Table 1.

Results of Tests in Residences A and B

The fuel consumptions obtained with the three series of test conducted in Residence A are shown in the lower part of Fig. 5. For a given outdoor temperature the fuel consumption for the case in which the sun room alone was closed, (series 3-42), was slightly less than that for the case in which the entire Residence was heated, (series 1-42; whereas the fuel consumption for the case in which the three rooms were closed, (series 4-42), was appreciably smaller than those for either of the other two cases. The reductions in fuel consumption, amounting to about 5 per cent and 15.5 per cent for series 3-42 and 4-42, respectively, are listed in Table 3, column 12.

Curves for fuel consumption for the tests conducted in Residence B are shown in Fig. 6 and the percentage reduction in fuel consumption is shown in Table 3,

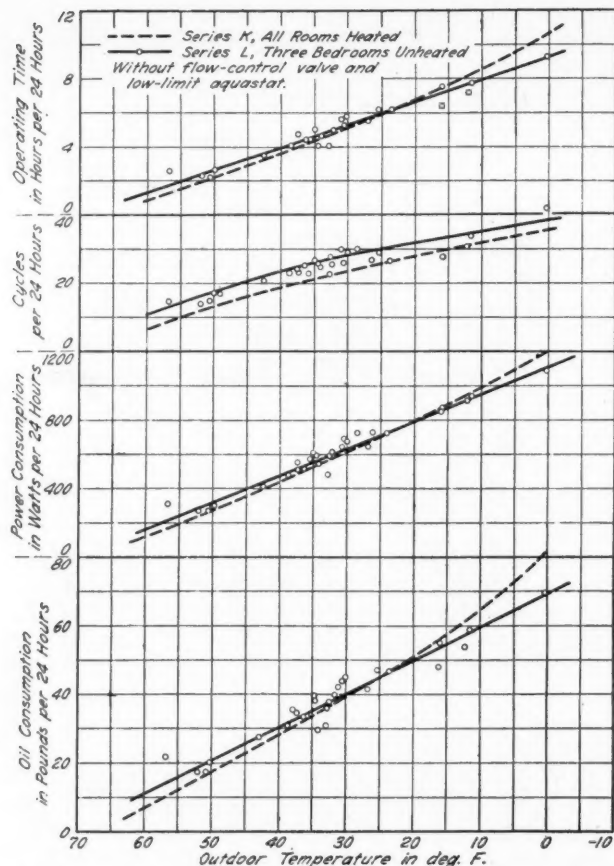


FIG. 6. FUEL CONSUMPTION IN RESIDENCE B AS AFFECTED BY CLOSING OF ROOMS

column 12. In this case, the closing of the three bedrooms on the second story, (series L), actually gave an increase in fuel consumption over that for the case in which the entire house was heated, (series K), for a wide range of outdoor temperatures. At an outdoor temperature of 38 deg. F., corresponding to the average winter temperature in Urbana, Illinois, the increase amounted to approximately 2.5 lb. of oil per day, or about 10 per cent. For an outdoor temperature of 25 deg. F. the fuel consumption for the two cases was about the same. At all outdoor temperatures below 25 deg. F. some fuel savings were effected by operating with the bedrooms closed and unheated.

Three methods suggested themselves for determining the anticipated saving in fuel consumption effected by closing of rooms:

(1) To compute the reduction on the basis that the fuel consumption is proportional to the living space, as represented by floor area, (Table 3, column 10).

(2) To compute the reduction on the basis that the fuel consumption is proportional to the living space, as represented by room volume, (Table 3, column 11).

(3) To compute the reduction in calculated heat losses. In making the latter calculation two courses are open:

(a) To revert to the original heat loss calculations based on the design temperature difference, and merely subtract the heat loss for the individual rooms from the total calculated heat loss from the house. This has been designated as "conventional" and is shown in Table 3, column 8.

(b) To recalculate the heat loss from the rooms closed, basing the computations on the calculated equilibrium temperature in the unheated rooms.

TABLE 3
SUMMARY OF HEAT LOSSES AND REDUCTIONS IN FLOOR AREAS, ROOM VOLUMES, AND HEAT LOSSES FOR RESIDENCES A AND B

Series No. and Rooms Heated	Ratio of Heat Input Rate to Calculated Heat Loss	Floor Area† sq. ft.	Room Volumes‡ cu. ft.	Calculated Heat Losses, B.t.u. per hr.			Reduction in Calculated Heat Loss From House, in per cent		Reductions, in per cent		
				Conventional, Room Heated	Conventional, Room Not Heated	Adjusted, Room Not Heated	Based on Conventional Heat Loss	Based on Adjusted Heat Loss	Floor Area	Room Volumes	Fuel Consumption by Test
1	2	3	4	5	6	7	8	9	10	11	12
Residence A											
1-42 All rooms heated	High flame 1.82 Low flame 1.15	2133	17 790	51 140							
3-42 Sun room not heated	High flame 2.11* Low flame 1.34*	1988	16 634		41 655	44 060	18.5	13.9	6.8	6.6	5.0‡
4-42 Three rooms not heated	High flame 2.35* Low flame 1.49*	1596	13 622		32 095	39 600	37.2	22.6	25.2	23.5	15.5‡
Residence B											
K All rooms heated	3.38	1123	8 998	43 370							
L Three rooms not heated	4.18*	728	5 942		28 780	35 815	33.5	17.2	35.1	33.9	-10.0‡ 0.0‡

*Based on values in column 7.

†Floor areas and volumes of closets not included.

‡Based on an outdoor temperature of 38 deg. F.

§Based on an outdoor temperature of 25 deg. F.

This has been designated as "adjusted" and is shown in Table 3, column 9.

It may be noted that in practically every case the actual reduction in fuel consumption, (Table 3, column 12, was materially less than the anticipated reductions based on floor area, room volume, and heat loss. It should be emphasized strongly at this point that anticipated savings based on reduction in floor area, room volume, and heat losses take no account of corresponding adverse changes that may take place in the operation of the plant as a result of shutting off registers and radiators.

In Residence B no actual savings in fuel consumption was accomplished even though more than one-third of the living quarters were closed and not heated. Even before any rooms were closed, the burner and boiler were largely oversized for the house. When the rooms were closed this condition was aggravated since it was not practical to reduce the heat input to the burner. Furthermore the heat loss from the living room, in which the room thermostat was located, was increased by an additional heat transfer through the ceiling to the unheated rooms. Thus, in order to maintain the living room at 72 deg. F. at any given outdoor temperature, it was necessary either that the radiators be supplied with water at a higher average temperature, or that the circulator operate longer in series L than in series K. The observed data indicated that, although the total circulator operating time remained unchanged, there was a definite increase in the average temperature of the water circulating in the system, together with an increase in the frequency of circulator operation. The increased heat loss from the living room, together with the probable decrease in operating efficiency resulting from the use of an oversized boiler and burner, effected an increase in the chimney losses. The increase in the chimney loss at an outdoor temperature of 38 deg. F. amounted to 40,000 B.t.u. per 24 hr., which is equivalent to about 2 lb. of oil. This corresponded fairly well with the observed increase in fuel consumption at this same outdoor temperature.

In the case of Residence A, even the high-flame

burner was not greatly oversized. Actually, during the tests the furnace operated practically all of the time on the low-flame burner, which was sized very closely proportionate to the heat loss from the house. In addition, the reduction of air volume was not very great (section 5, Schedule of Tests), no change in temperature of the circulating air was obtained, and hence no material reduction in operating efficiency of the plant occurred. The actual reduction in air volume in any forced-air or gravity warm-air plant is largely dependent on the resistance characteristics of the duct system and the motive head causing flow. Under some conditions, the characteristics of the fan in the forced-air system may be such that closing of a few rooms will result in a large reduction in air volume and thus create an appreciable rise in both the bonnet air temperature and flue gas temperature. As an extreme case, if all register and grille openings, except one, were closed, a very marked reduction in air volume would occur, and the efficiency of heat transmission would decrease, possibly to such an extent to overheat the furnace.

It should be emphasized strongly that the differences in savings shown in Residences A and B should not be interpreted as being attributable to the fact that one was heated by a forced circulation warm-air plant and the other by a forced circulation hot-water plant, since both types of plants, when properly designed, installed, and controlled, can be operated to give the same fuel consumption in the same building. The differences in savings should be attributed to differences in structural features of the two buildings, differences in location and character of the rooms closed as related to the rest of the house, and differences in the adverse effect of reducing the size or capacity of the heat distribution systems in the two particular plants under consideration.

It is true that in many cases a material saving might be effected by closing of rooms. In some cases, however, no reduction, or even an actual increase in fuel consumption might occur. Hence, any broad generalization that closing of rooms will result in material savings in fuel might be regarded with some caution.

Deferment of Stoker Servicemen

The following explanation of the manpower situation for servicemen is the latest report released by the Stoker Manufacturers Association. No blanket deferment is granted—you must discuss your problem and get your decision from your local War Manpower Commission board. Men over 26 years will receive the most consideration.

Early in February the Association filed the following telegraphic request with the Committee of Essential Activity of the War Manpower Commission:

"Reference to addition of oilburner repairmen and installation men to list of critical operations release of January Fifth PM-4500, we request similar consideration of mechanical stoker men. These men are engaged in maintaining units installed in thousands of war plants, apartments, commercial buildings of all kinds and in homes. The stoker industry is doing everything possible in fuel conservation program to save not only fuel but critical transportation and labor facilities. Our repairmen are employed by dealers located in practically every community and necessity for maintaining service facilities is paramount in conservation program. Your early consideration will be appreciated."

On February 10th we received a reply from Mr. Collis Stocking, Chairman, Committee of Essential Activity, which in part stated:

"... The War Manpower Commission's Interdepartmental Committee on Essential Activities has given very careful consideration to this occupation and has decided to continue to exclude it from the List of Critical Occupations as it does not meet the criteria established by the Committee for inclusion on the list in terms of training time.

"So far as the Selective Service classification of a registrant is concerned, it is primarily the responsibility of the local board to decide whether the specific establishment and the registrant's occupation therein are in support of the war effort. Interpretations of the Activity and Occupation Bulletins and the manner in which they are applied in cases of specific activities or occupations are matters coming within the jurisdiction of the local boards. Inclusion of an activity or occupation in a bulletin does not assure occupational deferment, nor does exclusion from a bulletin preclude consideration for deferment from military service.

"Subject to the right of appeal, the classification of a registrant is determined on an individual basis by the local board upon consideration of all of the evidence submitted. An employer filing a request for occupational deferment of a registrant must furnish all evidence necessary to classify the registrant, including full information to support the claim that the activity or occupation in which the registrant is engaged is necessary to the support of the war effort."

A few days later, we appealed from this decision in a letter from which we quote in part, as follows:

"We note that you have decided not to include mechanical stoker men on your list of critical occupations, as you have oilburner servicemen, due to the fact that it does not require the training time. We have men in this industry who have had experience in both oilburner and stoker service work. They state that since oil is a uniform fuel the problems in oil burners are purely mechanical. The

oilburner serviceman can be trained in less time than a stoker serviceman.

"Stoker fuels are not graded and we have a wide variety of coals, so in order to get an experienced stoker mechanic it takes years of experience, both from the standpoint of the equipment, the heating plant, the various types of coals and how they react under varied conditions.

"It takes a minimum of four years' time to develop a stoker serviceman to the point where he can solve the average problem that he encounters. Stokers, as you know, are installed in hundred of thousands of heating plants, manufacturing plants producing essential war materials, and in other essential industries, and the experienced stoker servicemen are being drafted into the military services right along. At the present time, it has reached a point where the industry should be permitted to retain the limited number of experienced men we now have."

On February 29th we received a reply, to the above letter from Mr. Stocking, reading as follows:

"The War Manpower Commission's Interdepartmental Committee on Essential Activities has again considered this matter and has again decided to continue to exclude this occupation."

The confusion existing in the manpower and selective service situation is terrific. It is possible, however, now to get a clear impression that local boards are to defer men above the age of 26 until the supply of men under 26 years of age is exhausted. The matter is left largely up to the local boards, and as stated in Mr. Stocking's letter, it continues to be a matter between the employer, the employee and the local board as to the essentiality of men. The mere listing of a critical occupation as such does not mean that blanket deferment is granted industry-wide to men in one single classification or occupation. It is obvious stoker dealers must take the initiative with the local boards in attempting to secure deferment of their key and essential servicemen wherever these men are being re-classified from lower brackets to 1-A. For men under 26 years of age it appears there will be no deferment except in the most highly critical occupations in key positions in a few selected industries such as synthetic rubber, high octane gas, airplanes, etc. However, with the new instructions to local boards issued only this week, it is possible to secure deferment of men 26 years of age and over if evidence of their essentiality and support of the war effort can be furnished the local boards. The situation in local boards differs, too. In some boards the supply of all registrants is practically exhausted and they will induct men irrespective of their age, occupation or family situation. These are all factors which must be taken into account in seeking deferment for mechanics in this industry.

Proposed Michigan Statewide Heating Code

Since 1940 warm air heating contractors in Michigan have been discussing a state-wide heating code. In AA, May, 1941, page 87, the first draft of the code was published—it was not acceptable. Subsequently, the whole proposition lay dormant for many months, but lately the proposal has been revived and we publish the re-written code following. In the main, this latest edition does not vary greatly from the 1941 suggested code—there are to be no state districts; there will not be three classifications of license; journeymen are now to be licensed before they can work on heating plants. The code has not been adopted or passed by the legislature, but likely will be presented to the coming session of the legislature.

THE following explanation of the proposed code has been sent by N. J. Biddle, secretary of the Detroit Association and of the Michigan state association, to his members:

"No real contractor in the heating field in this area thinks for a moment that a law is going to be a cure-all for all of the ills of the heating industry. He neither wants nor expects to have the State build a fence around the industry and tack up a 'verboden' sign to all who would enter.

"The prime reason for a State license law is for the protection of an uninformed public which is easily misled by unscrupulous firms which honeycomb not only this industry but most other industries.

"Assumption number 1 is that there is considerable hazard incident to live fire within the confines of any building. We do not believe this can be reasonably challenged.

"Number 2—When equipment handling or controlling live fire is improperly installed, the hazard is greatly increased.

"Number 3—Those who have intimate knowledge of the hazards incident thereto have a moral obligation to minimize those hazards to the greatest possible extent.

"Number 4—The most practical method of mini-

mizing such hazards has been found through long experience throughout the United States and Canada to be:

1. The adoption of a set of standards which, if adhered to, will reduce the hazard, to a practical minimum and
2. To reasonably ascertain that those who are to be entrusted with the installation of such hazardous equipment shall have a reasonably requisite knowledge and skill.

"The advantages from the point of view of the contractor can be summed up in this fashion:

No Advantages to the Ignorant or Unscrupulous

"We believe we have as large a percentage of qualified contractors who are good heating men and good business men as will be found in any part of the United States. We believe that we do not have any larger percentage of unqualified and unscrupulous men in this territory than plague other parts of the country and we believe that we are doing a fairly good job in handling our problems in as practical a manner as is reasonably possible under existing conditions.

"All any good contractor asks from a selfish standpoint is that the other fellow will have to adhere at least to standard minimum requirements."

A BILL

To provide for the creation of a Warm Air Heating and Air Conditioning Administrative Board of the State of Michigan and prescribing its duties and authorities thereof; the adoption and enforcement of standards for the installation of warm air heating and air-conditioning equipment; provide for the licensing of firms or corporations engaged in the business of installing warm air heating and air conditioning equipment; to provide for the licensing of properly qualified journeymen furnace workers; provide penalties for violations of this act; and to repeal all acts or parts of acts in conflict with this act.

Section 1. SCOPE AND DEFINITIONS

The provisions of this act shall apply to the installation of gravity warm air heating systems, mechanical warm air heating systems, winter air conditioning systems, summer air conditioning systems when installed in connection with or attached later to a winter air conditioning system and combinations thereof, and the alteration, repair or addition to such systems or the connection of any additional apparatus or equipment to said systems in or in connection with all public or private buildings; provided, however, that this act shall not apply to the installation, alteration, or repair of any equipment whose register output exceeds 300,000 British Thermal Units on any one system or to any parts of warm air heating and air condi-

tioning installations which are definitely assigned by statute to other trades.

The term "Warm Air Heating" shall mean and include a heating unit with a system of connecting air ducts to supply and distribute heat to any structure.

The term "Gravity Warm Air Heating" shall mean and include the circulation of warmed air by gravity only by means of the use of a heating unit and a system of air ducts.

The term "Mechanical Warm Air Heating" shall mean and include the circulation of warmed air by mechanical means in a warm air heating system.

The term "Semi Air Conditioning" shall mean and include the simultaneous control of temperature, movement, and cleanliness of the air.

The term "Winter Air Conditioning" shall mean and include the simultaneous control of temperature, humidity, movement and cleanliness of the air during the heating season only.

The term "Air conditioning" shall mean and include the simultaneous control of temperature, humidity, movement and cleanliness of the air.

Section 2. ADMINISTRATIVE BOARD

There is hereby created the air conditioning administrative board of the State of Michigan, hereinafter designated as the "board", which shall consist of the State fire marshal or his designated representative, the head of the

department of mechanical engineering of Michigan State College and other resident members, citizens of the United States, appointed by the Governor as follows: one representative of an underwriters inspection bureau operating in the State, persons who are representatives of recognized persons or firms engaged in the business of warm air heating and/or air conditioning and licensed journeymen furnace workers. The term of the appointive administrators shall be for a period of 3 years except that, in the first instance, administrators shall be appointed for 2 years and administrators shall be appointed for the full term of 3 years. Any appointed member may, for cause, be removed from office by the governor. The members shall annually elect a chairman. members of the board present at any meeting shall constitute a quorum but any action taken at any meeting shall require the affirmative vote of at least the number required for a quorum.

Section 3. DUTIES AND AUTHORITY OF THE BOARD

The Board shall hold regular meetings quarterly and may hold special meetings on call of the chairman. The board is hereby authorized and it shall be their duty to employ an executive secretary, investigators and other necessary personnel; to grant licenses to those applicants who shall show proper qualifications and have paid the prescribed fees; to examine persons who shall apply for inspector's certificates of qualification and/or journeymen's licenses and to grant such certificates and/or licenses to those who shall show the proper qualifications and have paid the prescribed fees; to suspend or revoke any license or certificate for good and sufficient cause as hereinafter provided and to make any necessary investigation in connection therewith; and to adopt and issue the necessary orders and regulations for the enforcement of this act. For safeguarding the health, lives and property of persons, the board is hereby empowered and shall adopt and publish minimum standards prescribing such rules and regulations as they may consider necessary for installations or the repair, alteration or extension of existing warm air heating and/or air conditioning systems or the addition or attachment of any apparatus thereto on all work within the scope of this act, but which shall not be in conflict with any statute of this state; and provided, further, that such minimum standards shall only be adopted and issued after not less than a thirty day notice and a public hearing thereon. Changes in said standards may be made after a thirty day notice and a public hearing, if requested. Notice of such proposed changes shall be given and publication of such changes shall be made in such manner as prescribed by the board. All orders, rules and regulations shall be printed and made available for general distribution and shall become effective at such time as may be determined by the board.

Section 4. STANDARDS

All installations or the repair, alteration or extension of existing warm air heating and/or air conditioning systems or the addition or attachment of equipment or apparatus thereto within the State of Michigan shall be in conformity with approved standards for the safety to persons or property, the statutes of this state, orders issued by the board under the authority of this act and all applicable ordinances.

Section 5. LICENSE

(a) *Contractors license.* No person or firm shall engage in the business of installing, maintaining, altering, repairing or extending or installing any additional equipment or apparatus in connection with any new or existing gravity warm air heating or air conditioning systems without first having obtained from the board a license. Each person or firm operating more than one contracting establishment in the State for carrying on the business of warm air heating and/or air conditioning contracting shall be required to secure a license for each such establishment.

(b) *Journeymens license.* No person may be employed to fabricate or install new warm air heating and/or air conditioning systems or to repair, alter or extend or to connect any additional equipment or apparatus to existing warm air heating and/or air conditioning systems, except helpers and apprentices as may be permitted by the board, without first having obtained from the board a journeyman's license.

Section 6. LICENSE REQUIREMENTS

(a) *Contractors license.* Each application for a contractors license must be made in writing upon the regular forms provided and shall include a full statement of his or their experience, financial and other references as required by the board and such other pertinent and reasonable requirements and information as said board may demand. Said application must be filled out in detail and sworn to before a State officer authorized to administer oaths, and must be accompanied by the required fee in the amount of twenty-five (\$25.00) dollars.

(b) *Journeymens license.* Each application for a journeyman's license must be made in writing upon the regular forms provided and shall include a full statement of the applicant's experience, training, and such other pertinent and reasonable requirements and information as required by the board. Said application must be filled out in detail and must be accompanied by the required fee in the amount of two (\$2.00) dollars. Before issuing any such journeyman's license, the applicant shall be required to pass an examination at such time and place as may be determined by the board.

(c) *Renewals.* Each license shall expire on December 31st next following the date of its issuance and shall be renewed by the board upon application of the holder of the license and the payment of the required fee for the class of license to be renewed at any time within thirty days before the date of its expiration. Licenses not renewed by the first day of February next following their expiration shall be deemed to have been cancelled and any licensee whose license has been cancelled shall make application and otherwise comply with the same requirements as in applying for a new license.

Section 7. ISSUING OF LICENSES

(a) *Contractors license.* Within thirty days of the receipt of an application accompanied by the necessary fees, the board shall issue a license provided that the applicant shows a sufficient experience, proper financial ability to satisfactorily perform, and other reasonable requisites as deemed necessary by the board. Every holder of a license shall keep his or their license displayed in a conspicuous place in his or their principal place of business.

(b) *Journeymens license.* Within thirty days of the receipt of an application accompanied by the necessary fee, the board shall issue a license card provided the applicant shows sufficient experience, training, and such other reasonable requisites as deemed necessary by the board. Each holder of such license must carry his license card with him at all times while working and shall willingly show the same when requested.

Section 8. REVOCATION AND SUSPENSION OF LICENSES

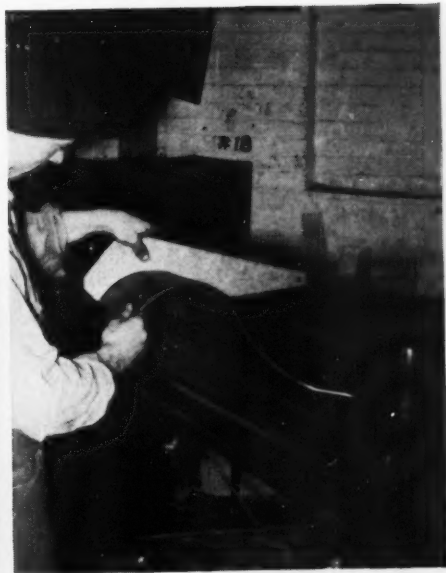
No license or certificate issued in accordance with the provisions of this act shall be assignable or transferable. Any license may, after a hearing, be suspended for not over thirty (30) days or revoked by the board if the holder thereof willfully or by reason of incompetence, violates any statute of the state or any ordinance, rule or regulation of any municipality of the State or any order of the board pertaining to the installation, maintenance, alteration or repair of any warm air heating and/or air conditioning equipment. In the event the license is revoked, the holder of said revoked license shall not be eligible to make application for another license until the

(Continued on page 114)

AMERICAN ARTISAN

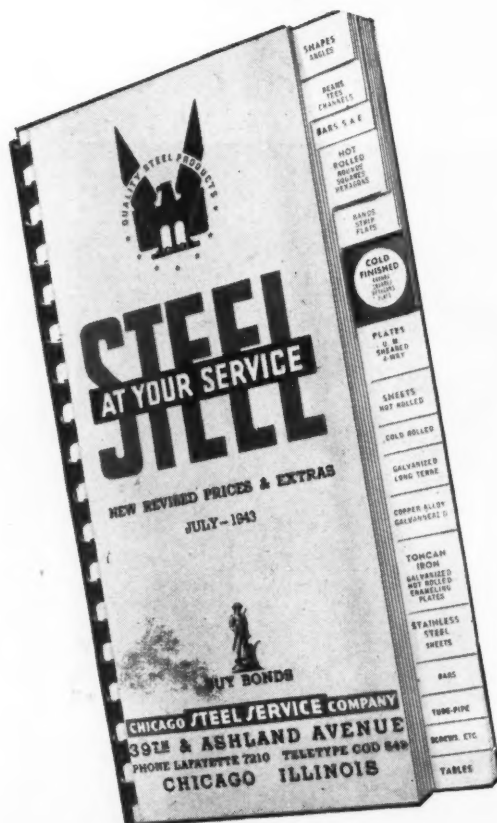
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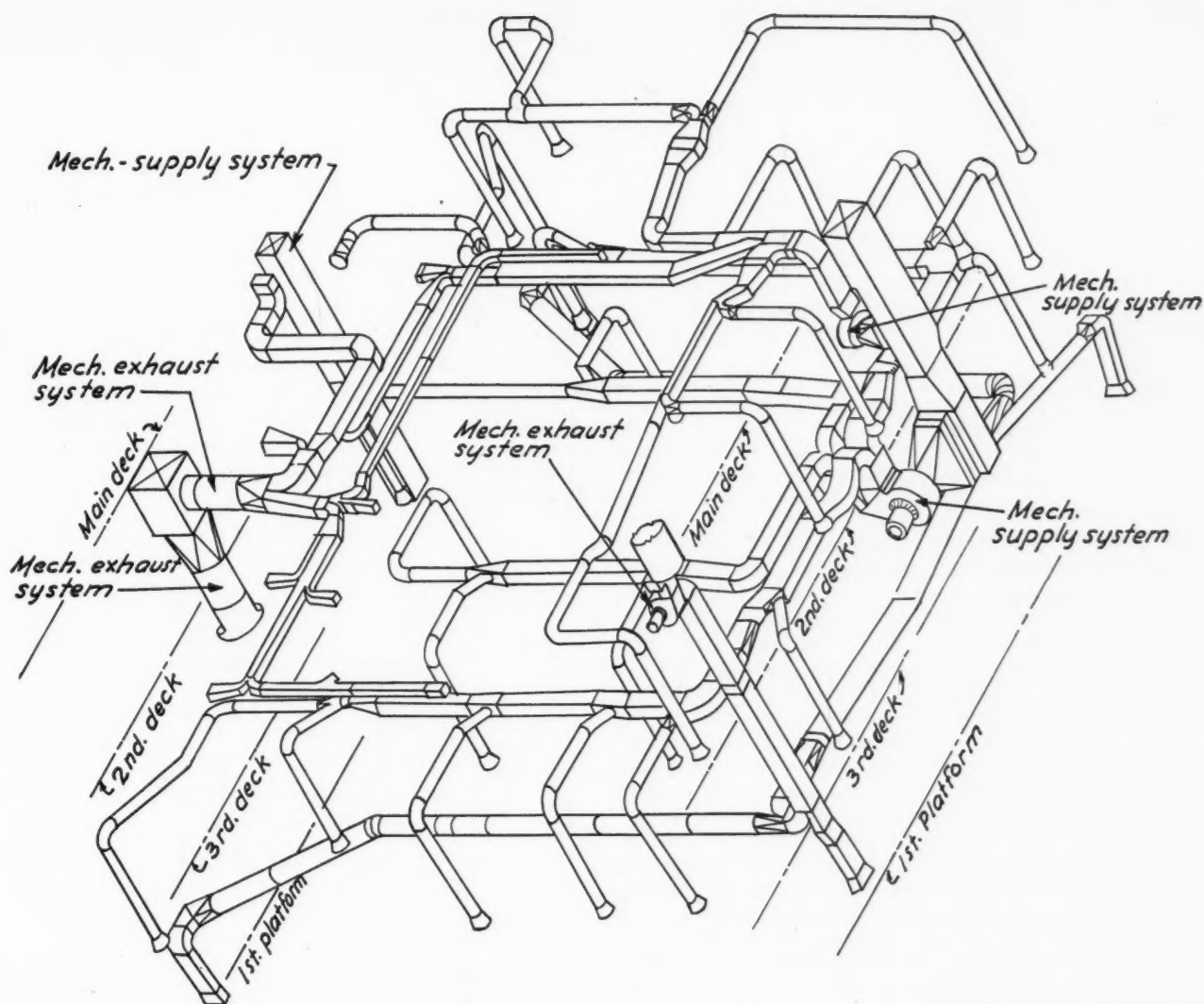


CHICAGO STEEL SERVICE COMPANY

ASHLAND AVE. AT 39th ST.
 CHICAGO 9

The House of Stainless

TELEPHONE LAFAYETTE 7210
 ILLINOIS



This isometric view shows six complete ventilating systems in one section of a ship. There is one exhaust system for crew toilets and showers; one exhaust system for a berthing area; one exhaust system for a cargo space; one supply system for berthing and mess area; a supply system for another berthing area; and one natural gravity supply system.

[Ship Ventilation—Heavy Gauge Jigsaw Puzzle]

By Frank Hoey

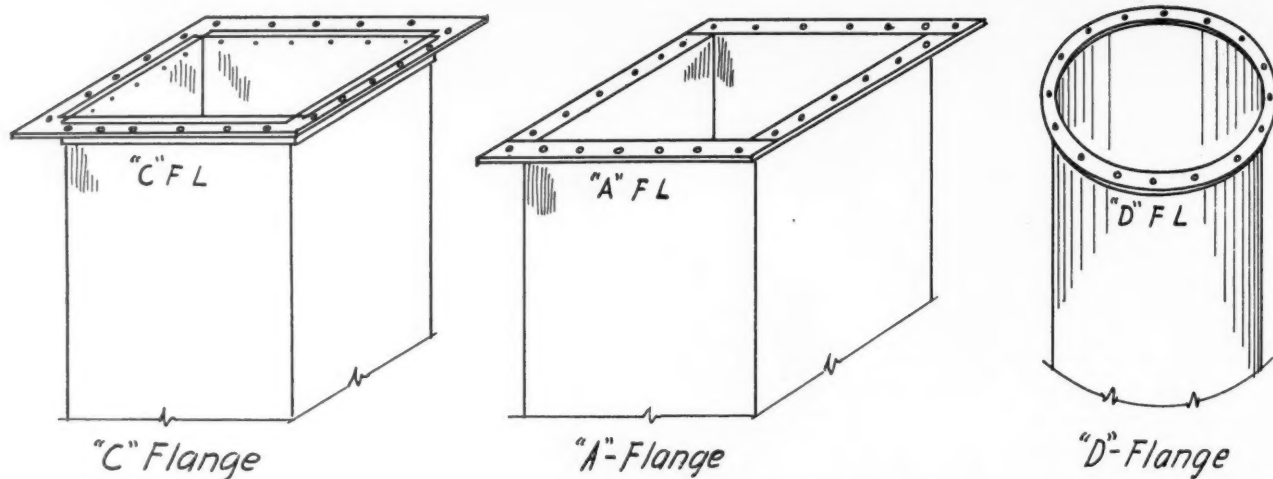
IN SOME respects ship ventilation is similar to ventilation used in general construction work. However, the weight of the materials used is usually several gauges heavier and the method of joining the sections together is of a more rugged type, such as angle iron flanges bolted together with a $\frac{1}{8}$ -inch gasket between to make an airtight job and also make it possible to remove any section of the system if necessary.

Where ducts pass through bulkheads or decks a "spool" or coaming made of ten or eleven gauge material and usually about six inches long is welded into place and the duct bolted to the flange welded on either end. A spool is a short section of duct that passes through the bulkhead and a coaming is in reality just half of a spool and does not pass through the bulkhead or deck, but welds to each side. The spool is made the same size as the

duct to which it fastens and may be round, flat oval, or rectangular in shape.

A ship ventilation "system" is composed of the necessary ducts, dampers, registers, heaters, blower and terminals to heat or ventilate a certain section of the ship. It may be confined to one or more decks and usually between water tight bulkheads. This space is known as a section. These water tight bulkheads extend across the ship from one side to the other and are welded to the shell. The number of water tight bulkheads depends on the size, type or purpose for which the ship is built.

There are four distinct types of ventilating systems. Mechanical supply and mechanical exhaust are the ones requiring blowers to force the air, and then we have the natural supply and natural exhaust. The mechanical systems require blowers varying in size from a few hundred CFM to as much

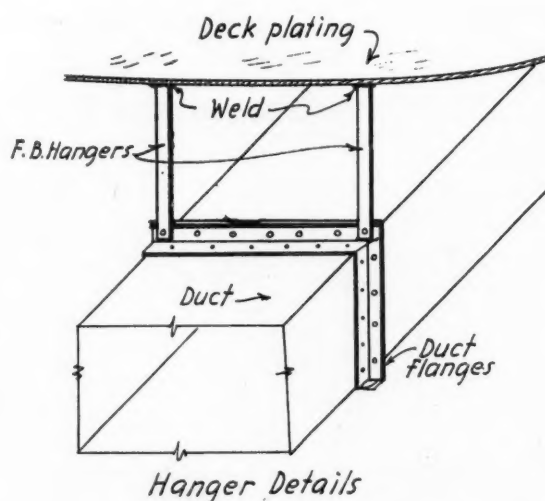


"A" Flange is a flat bar welded to a "spool" or structural piece. "C" Flange is an angle iron riveted to a duct. "D" Flange is a circular flat bar fastened to the duct with a bead.

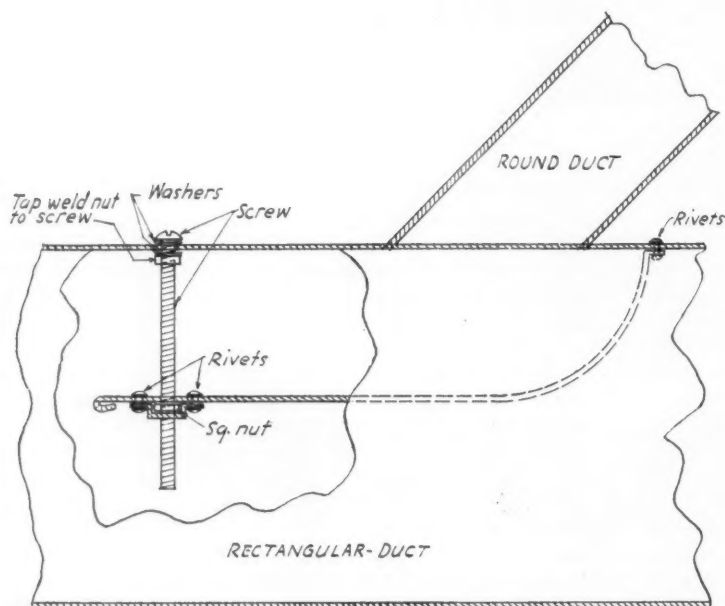
as 25,000 or 30,000 CFM. The number of systems required depends on the type ship, the construction of the ship, and the number of its crew and passengers carried. A system serving a galley or mess area, or berthing area requires more capacity than one serving a cargo area. The size of a system is governed by the size area it serves and the number of air changes required in a given time.

The engine room systems require more and faster air changes because of higher temperature radiated from this equipment. So the modern ship has a wide variety of ventilation systems, each serving a certain area for a certain purpose. It is possible to ventilate or cool the air by changing or circulating it, or to heat it to any desirable degree by passing the air through steam coil heaters placed in the system. Some of the accompanying drawings will show the heaters in the duct. It is necessary to enlarge the duct where it joins the heater to allow for the restriction in the air flow by passing through the heating coils. The heaters are usually controlled thermostatically. Some systems do not require heaters.

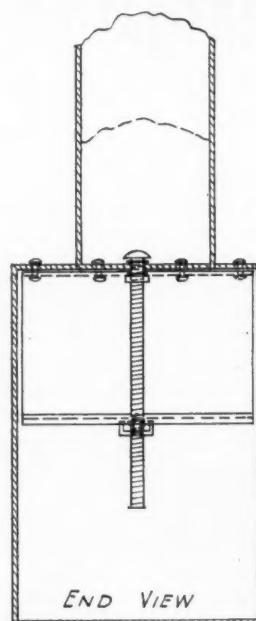
It is not uncommon for the modern ship to have



Method used to hold heaters in place—heavy construction for added weight of the heaters.



PLAIN VIEW - TYPE "A" SQUEEZE DAMPER



Wherever a branch (round pipe) is taken off a rectangular main a "squeeze" damper is used to control air volume. Either the damper here (Type A) or the damper facing (Type B) is used.

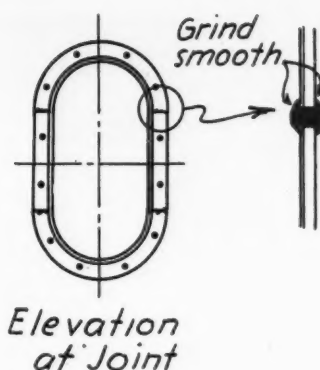
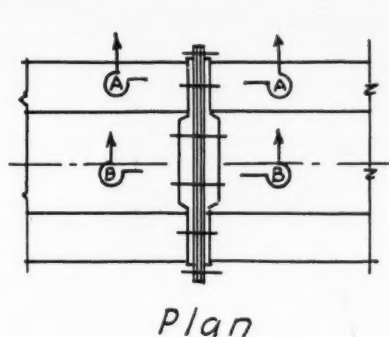


Fig. 1

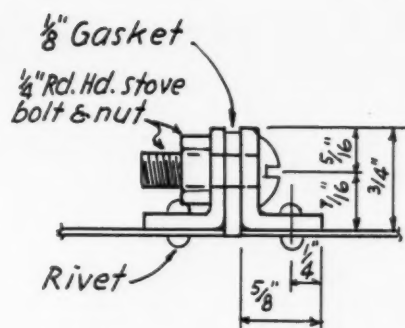
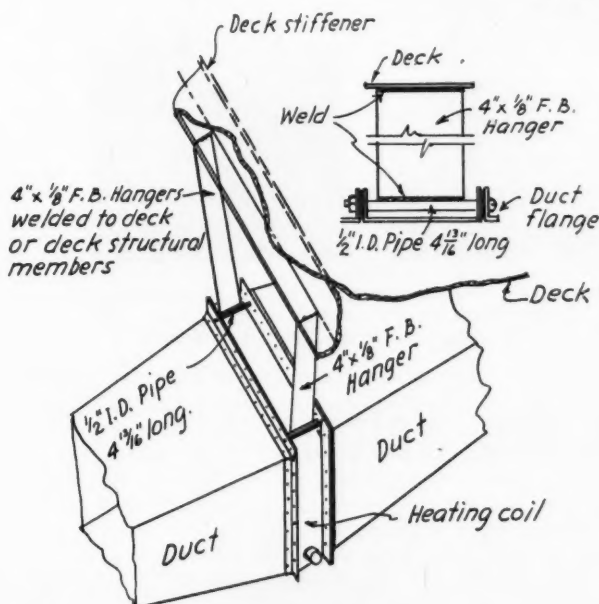


Fig. 2

Fig. 1 shows methods used for flanges on round or flat oval duct work. Fig. 2 shows flange method used on square or rectangular ducts.



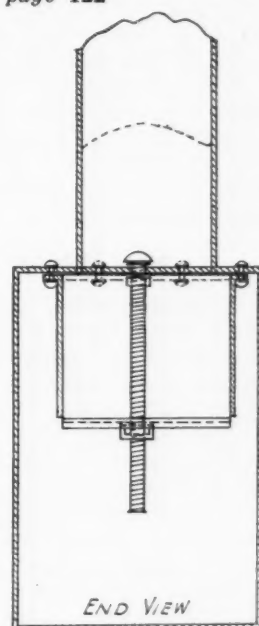
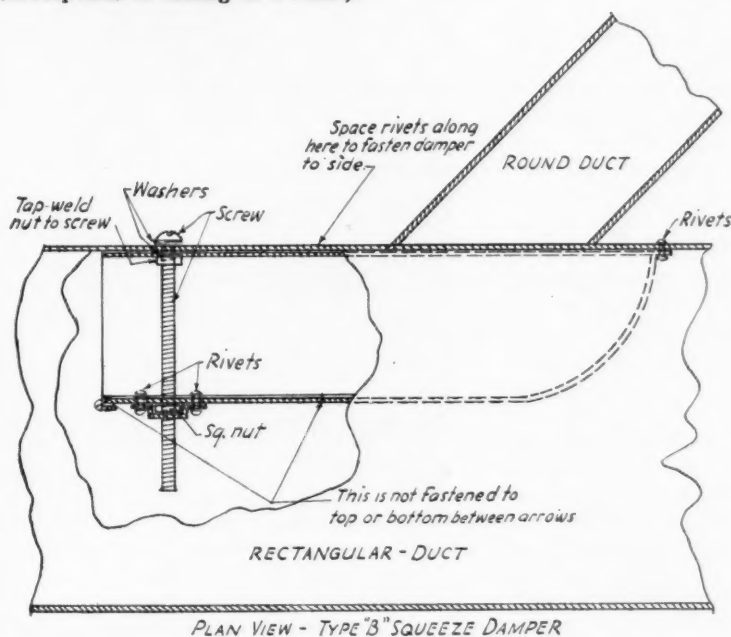
Details of hangers for heating coils

Method used to hang ducts from the underside of deck (this corresponds to ceiling of a room).

fifty to a hundred separate systems. One of our west coast yards recently completed an order for a certain type ship that required one hundred sixty thousand pounds of sheet metal in its sixty ventilating systems. These ships were turned out at the rate of one a week.

The isometric view shows six ventilating systems in one section of a ship. The systems are composed of rectangular and round pipes and show the many angles and offsets necessary to work around the numerous interferences encountered in ship construction. Views such as those shown here, together with the measurements of pipe sizes, offsets and distances from the deck above are all that is necessary to lay out the patterns, fabricate and install the system in the ship. These blue prints are furnished by the naval architects and are first sent to the sheet metal layout department where they are checked over and broken down or divided into pieces or sections and given a number of identification. These numbers start with number one at one end of the system, or the fan, and run consecutively to the last piece in the system. This number is placed upon the pattern when first laid out on paper. The paper patterns are then transferred to

(Continued on page 122)





The complete atomic-hydrogen arc welder provides the operator with a convenient means of regulating the current, the hydrogen, and the control of the arc. Shown here is the complete equipment. All photographs from "The Inside of Atomic-hydrogen Arc Welding" General Electric Co. film.

Atomic-Hydrogen Arc Welding

Atomic-hydrogen arc welding is the result of research work in the early 1920's by Dr. Irving Langmuir, General Electric research chemist and Nobel prize winner. It differs from the ordinary arc-welding process in that the arc is maintained between two electrodes rather than between one electrode and the work. Because the location of the arc can be controlled and because the arc has no tendency to blow the molten metal out of the joint, extremely precise control of metal fusion is afforded.

THE atomic-hydrogen process of arc welding differs from the ordinary arc-welding process in that the arc is maintained between two electrodes rather than between one electrode and the work. In addition, the arc is made to occur entirely in an atmosphere of hydrogen. These features account largely for its outstanding performance.

Heat Where, When You Want It

A peculiar thing about an electric arc occurring in a stream of hydrogen gas is that much of the hydrogen is changed from a molecular state to an atomic state (whence the process gets its name) and thereby causes the arc to absorb a considerable amount of additional energy. In escaping the arc stream, these atoms recombine to form molecules again at the outer edge of the arc fan, and the extra energy is released as heat. This extra heat, added to the normal heat of the arc, produces a considerably higher temperature than either the ordinary arc or gas torch. Since all of this heat is concentrated at high temperature in the small volume of the arc fan, excellent instant heat transfer to the work is ob-

tained. Furthermore, since the arc is independent of the work and can be moved instantly at will, atomic-hydrogen equipment provides an unusually mobile tool which is especially valuable in the fusion welding of delicate and exacting work, such as building up contours of molds and dies, welding thin sections, etc.

High Ductility and Smooth Finish

The principal benefit from the hydrogen is that it excludes all oxygen and other gases which might combine with the molten metal to form oxides and other impurities, and in addition it is so active in its atomic condition that it successfully removes oxide existing on the surface of the work. As a result, atomic-hydrogen welds are unusually ductile, strong and smooth in appearance—qualities which alone often warrant the use of this process, especially when appearance is important or when the work must be forged or swaged afterwards. Furthermore, the deposit is uniform, dense, and free from pinholes, thus making it possible to obtain an excellent surface when it is desired to machine the weld to get a definite size and finish, as in repairing molds, dies, tools, etc.

Wide Useful Range

Although a constant arc is ordinarily maintained while welding, the arc is adjustable over a wide range of size and intensity to provide a wide choice of heat to suit a wide variety of work.

Operation

Operation of an atomic-hydrogen arc-welding equipment, although slightly different, is as simple as the operation of any other type of arc welder. In order to start the arc (assuming the equipment is properly installed and adjusted according to instructions) the operator should grasp the electrode holder and pull the trigger until the electrodes are separated. He should then press the START button while he allows the electrodes to come together momentarily to strike the arc, after which the electrodes should be immediately separated to about 1/16 of an inch. This operation ignites the hydrogen as well as starting the arc. The flow of hydrogen is controlled automatically. The START button should be released as soon as the arc is established.

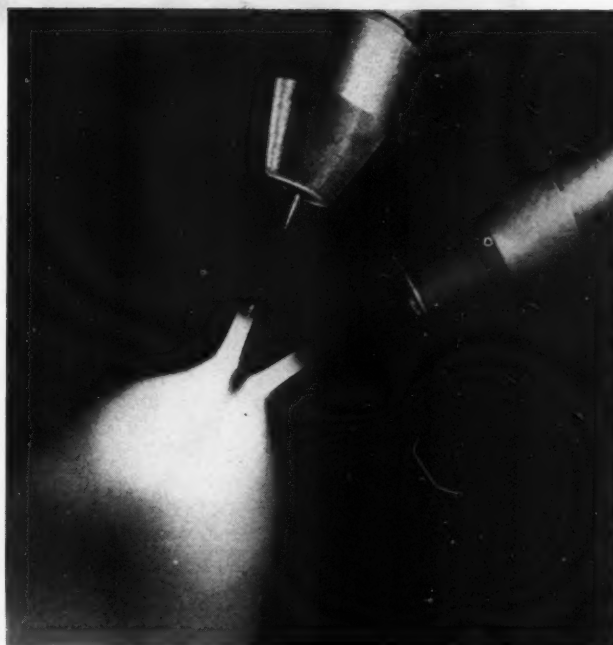
The operator should then adjust the current, by means of the handwheel on top of the unit, to suit the thickness of material being welded.

The electrodes used should be large enough, of course, to accommodate the current required without excessive consumption of the tungsten.

The arc can be stopped by depressing the STOP button or by increasing the gap between the electrodes until the arc breaks.

Technique

Welding technique is primarily a matter of craftsmanship. Although the proper technique in getting best results with atomic hydrogen is no more difficult or involved than with any other welding process, its acquisition rests ultimately with the individual. With a few hours of practice, an operator can learn how to start the equipment and to make the proper adjust-



Alternating-current is used to form an electric arc between the electrodes. The arc is entirely free and independent of any work. Unique feature of this process is the use of a hydrogen flame to surround the fan-shaped arc as here illustrated.

ment of welding current and hydrogen flow. With this knowledge and a few simple rules, he can make satisfactory welds on plate stock. Skill in the welding of complex sections, the repair of molds and dies, and thin materials, must be acquired by experience or under the direction of a competent instructor.

Familiarity with other methods of welding is of some assistance to the operator who is just learning to weld with the atomic-hydrogen process. To a considerable extent, the manipulation of the atomic-hydrogen electrode holder is similar to welding with a gas torch. Steadiness of hand and accuracy of touch are required for best results. General knowledge of counteracting warpage is also helpful.

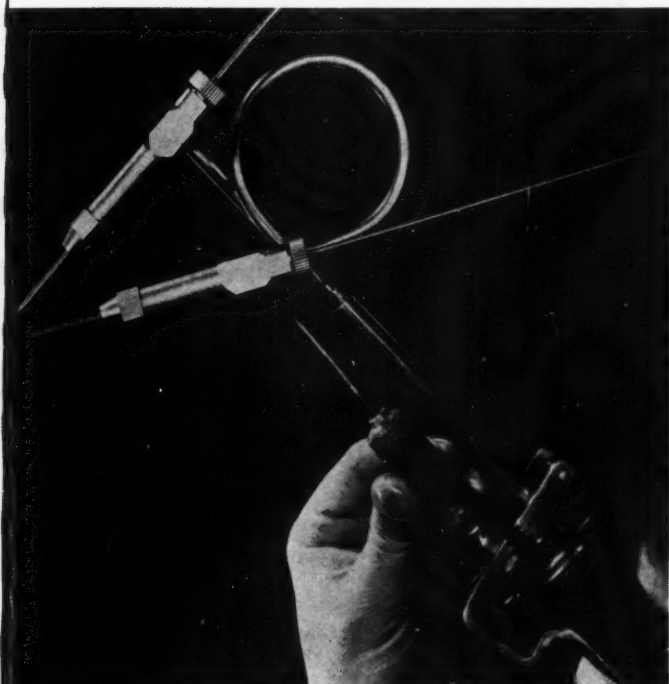
Since the arc is established between two electrodes, the work does not form a part of the electrical circuit and, therefore, does not need to be grounded. A filler rod may or may not be used, depending on whether the desired joint requires the addition of metal. The tungsten electrodes do not enter into the weld, although they are very slowly evaporated by the intense heat of the arc.

Viewed through a welding glass, the arc stream is seen to have a very definite circular outline, as illustrated. The greatest concentration of atomic hydrogen (and therefore heat) occurs at the boundary of the arc stream, the edge of which should just touch the surface to be welded. The amount of heat available for welding depends on both the welding current and the size of the arc fan.

Filler Rod

In welding alloy steels, the analysis of the filler rod, when such rod is used, should be practically the same as that of the parent material except for the carbon content, which should be about one-third greater in order to compensate for the loss of carbon during welding. No appreciable loss is caused in any of the other alloying ingredients.

(Continued on page 126)



Atomic-hydrogen arc welding makes use of two electrodes clamped in a holder which controls their position and directs the flow of hydrogen. Here operator is adjusting arc gap in preparation for welding.



The new home shop of Iowa Sheet Metal Contractors in Des Moines is planned and equipped to handle the fabrication of all metal work on the largest jobs. Complete sections or knocked-down are trucked hundreds of miles.

Procedure to Erect 30 Feet (Average) of Large Asbestos-Cement Duct in 9 Hours

IN NINE storage warehouses of the 830th AAF Specialized Depot at Memphis, Tenn., Iowa Sheet Metal Contractors, of Des Moines, recently completed the fabrication and erection of asbestos-cement and metal duct systems by methods which obtained maximum speed with a skeleton crew of experienced mechanics and labor picked up on the job site.

The contract is quite sizable—there were, roughly, eleven miles of duct work requiring about 500,000 square feet of 3/16-inch asbestos-cement board. Each warehouse is about 1,000 feet long. To supply heat, two furnaces were placed in furnace rooms outside the warehouse, with supply ducts running two ways from each furnace, using two supplies and two returns in each quarter of the building. The supplies are at the one-third points of the width; the returns are along the outside walls. All duct work is suspended from the roof members about 11 feet above the floor. Air is introduced from stub branches along the main (see plan) and is returned through drops along outside walls, the drops rising to the level of the returns.

The plans and details show the interesting and vital features of the construction. The asbestos-cement is installed as panels supported within a metal framing.

Some parts of the system are all metal—all stub branches are metal; all main duct transitions, elbows, turns are metal; both supply and return mains are metal from the furnace plenums to the first elbow inside the building; fan housing and bonnets are metal; the registers are metal (see Detail 7) made in the Des Moines shop; all connectors are 18-gauge metal.

Iowa Sheet Metal Contractors on most of their out-of-state contracts have followed the policy of fabricating all metal work in the Des Moines shop and trucking the finished sections, either completely assembled or knocked-down, to the job. This policy was followed on this job, the all metal section described above being delivered in most cases as complete duct sections or complete fittings.

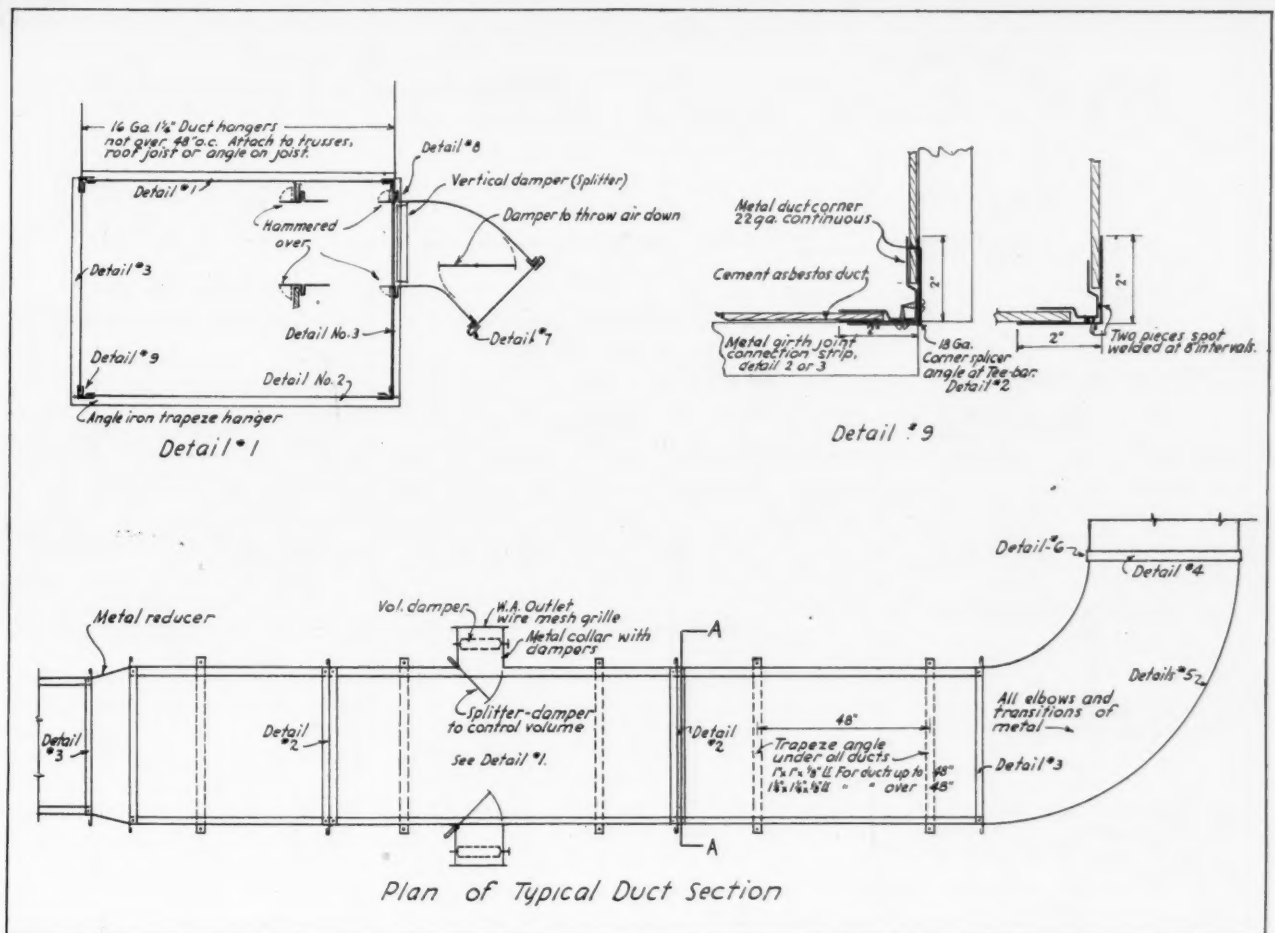
How Waste Was Minimized

The asbestos-cement sheets were purchased in one size, 48 by 96, except for a few sheets of 48 by 84 inches. The sheets were stockpiled in the job shop, out of the weather, with deliveries staggered so that too large a quantity to handle would not be received at once. In the job shop a two-man, 8-foot shear was used to cut the sheets. It was found that this material (Keasbey & Mattison) could be cut to size readily by smartly closing the shear; the resulting cut edge was more than sufficiently smooth to meet inspection. Since all the warehouses are identical and the duct systems in each warehouse are duplicates, it was possible to take off measurements and duplicate panel sizes hundreds of times. The shearing procedure was to cut the sheets into panel size, one size at a time, before the shear gages were reset.

Some changes in duct size, but maintaining overall duct dimensions, made possible considerable saving in waste sheets. For instance, the table following shows a typical run of changes which saved material:

Original dimensions	50x34	48x34	46x30	40x28	38x24	30x20
Revised dimensions	49x34 $\frac{3}{4}$	48x34	48x28 $\frac{3}{4}$	48x23	48x19	33x18

Using these revised dimensions, it was possible to



The plan and details above and the details facing show the construction developed for this job. The erecting procedure described in the text explains where and how each construction was used.

use the waste from the large panels for the small sized ducts (the mains reduce progressively to the far end) and, while the small sized duct sections did not absorb all the waste within one duct system, in the whole contract almost all the waste was absorbed.

The page of details shows the features of the construction. It will be noted in Detail 9 of a horizontal corner metal connector that this strip was fabricated as two pieces. This construction eliminated all complicated brake work and made it possible to form the strip in four simple steps—90° bend on outside strip; two passes through the forming rolls to make the inside strip; spot welding the two formed strips together at 8-inch intervals. The strips were delivered welded in 8-foot lengths.

Detail 2 shows the three-piece cross connector for top and bottom. This is three pieces as shown, formed in the brake and rolls, and after forming put together and flattened for delivery on the job as a complete standing seam connector.

With all the materials delivered or cut to size on the job as described, this was a typical procedure in erecting the ducts. Assume that the duct is complete up to A-A on the plan. The work was done on steel tube, caster wheel, scaffolds about 16 by 16 feet on the platform. Two men made a typical erecting crew.

Erecting Procedure

- (1) The hanger angle was nailed to the roof joists.
- (2) The two hanger strips were bolted to this angle and the hangers were cut to length and punched and the bottom hanger angle bolted in place.

(3) The complete standing seam cross strip was shoved onto the top edge of the section already erected (No. 1, Detail 1).

(4) The complete standing seam connector was shoved onto the bottom edge of the section already erected (No. 2, Detail 1).

(5) One 10-inch, 90° corner splicer angle was placed in each corner of the hanger (see note, Detail 9).

(6) The two vertical, standing seam connectors (Detail 2) and (No. 3, Detail 1) were shoved onto the sides of the duct previously erected.

(7) Two horizontal top connectors (Detail 9) were put on the edges of the top panel sheet on the floor; two horizontal bottom connectors were put on the bottom edge of the panel on the floor.

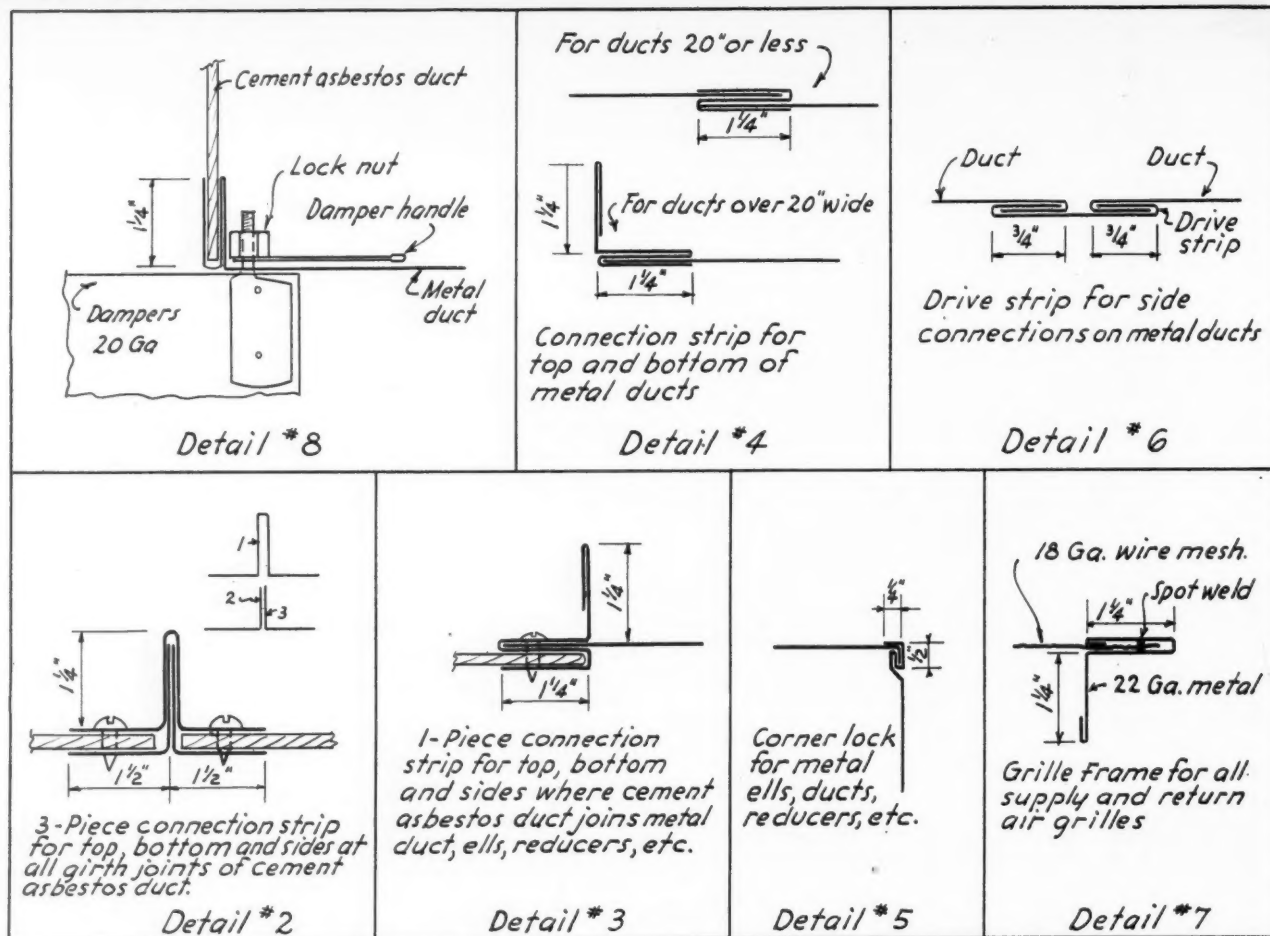
(8) The bottom panel, with connectors, was laid in the hangers and shoved into the bottom cross connector of the preceding section.

(9) The two side panels, without any connectors, were shoved into the horizontal bottom connectors and ahead into the vertical connectors already on the preceding section.

(10) The top panel, with horizontal connectors, was put in place and shoved into the side panels and ahead into the top cross connector of the preceding section.

(11) The ends of all four panels were made flush by hammering on a heavy bar held against the panels.

(12) Using electric drills, holes were drilled through the horizontal connectors and corner splicer angles at each hanger and sheet metal screws were run in to hold the two sections together (Detail 9).



Note—Both men of the crew handled the panels, but one man measured the hangers with a plumb line and punched the holes for the bottom angle of the hanger and bolted the hangers together and placed the cross connectors on the preceding duct section, while the other man drilled the holes and ran in the metal screws at the section joints.

This erecting procedure made it possible for one two-man crew to erect 24 to 32 (average) feet of duct, complete, in each working shift (9 hours). The materials were delivered to the scaffold by a separate crew, with truck, hauling from the job shop or from the metal section stock pile to each crew and helping move the scaffolds.

The final step in completing the duct required placing the stub elbows (Detail 1). These stubs complete with face in place were delivered from the job stock pile. No holes were made in the panels until the

duct was complete in place and just before the scaffold was moved. Then the mechanics took a screw driver and a hammer and drove the screw driver into the asbestos-cement panel and hammered the screw driver along the scribed lines of the opening to make the hole. It was found that a screw driver worked better than a chisel or any other tool. After the hole was cut, the stub was shoved into the hole and the mechanic either reached into the end of the duct or took off the grille to reach through the stub and hammered the inside ends of the stub back against the panel as shown in Detail 8. The contract required some 17,200 stubs and faces.

Metal reducing transitions (see plan) were delivered from the stock pile and placed as the duct went up. Details 3, 4, 5, 6 show construction of metal sections and methods of joining to asbestos-cement panels.



Construction of a Solar Water Heater

By Ernest E. Zideck
Sheet Metal Consulting Engineer

SHEET metal and heating shops looking for products to fabricate when peace comes may find such a product in a solar water heater which by the rays of the sun between May and October will heat water to 120 degrees practically everywhere, if there is sunshine for at least three hours a day.

The Chicago weather bureau estimated at one time that there are upwards of 161 clear, sunshiny days throughout the Middle West. There are at least 120 of such days during the season when there are no frosts which would freeze water in the water pipes. And it is principally in the season when the furnace is idle that people who in winter get their hot water from the furnace coil have difficulty in getting hot water. Not everywhere throughout the country is there cheap gas handy. In the rural districts especially there rarely is gas available for heating water.

Around the lakes and in the woods away from the cities where people have their summer homes, and in the business places which cater to the summer trade, the lack of facilities for heating water to shave, to bathe, to wash dishes and do washing is especially felt. Then there are farm homes scattered throughout the country which also get their winter hot water from the furnace but which must start and tend a wood fire or use expensive electricity to get it in the summer.

Solar water heating is not a new invention. It started in the days of the California gold mining camps and has been in use, in one form or other, ever since. The sunshiny Pacific Slope, the Gulf Coast, and especially Florida have used sun-ray water heating extensively. In the university town of Coral Gables, for instance, there is scarcely a home without a solar water heater, as one will notice driving through the streets of the town and see what appear to be skylights on the Spanish tile roofs of the homes. A sheet metal shop in Tampa started making solar water heaters way back in the '20's, employing upwards of a dozen men, doing nothing but building the heaters. There are two such shops in Miami, with others in Palm Beach and in the smaller cities of Southern Florida.

The reason the Solar Water Heater has not found its way farther north is not that the heater will not heat the water here, but because there never was a heater constructed yet that would not get out of alignment in shipment and cease functioning if not installed just right. In other words, the Solar Water Heater as constructed locally is constructed for local use, not for shipment, and its construction is such that the maker must install it to make it work. One large plumbing goods manufacturer was at one time interested in the selling of the heaters fabricated in Florida, but found the construction too bulky and the heating coils too flimsily arranged for shipment; and that the coils invariably get out of order in shipment and the plumber or installer has his troubles with it. This is so because the makers of the heaters were

under the impression that a large area must be exposed to the rays of the sun and have made heaters up to 4 feet by 12 feet in size, with quite heavy tube-coils which get out of alignment easily. The theory of a large area exposed to the sun was blasted by the U. S. Everglades Experimental Station when it achieved 22 per cent better results with a 3 foot by 8 foot heater in 1931.

How Solar Heater Functions

There is nothing new in this arrangement of water heating by sun's rays. The piping into the water storage tank and from the tank to the heater follows gas heating principles: (a) the heater must be located lower than the storage of hot water; (b) the storage tank should preferably be insulated, as is done now by the gas companies selling the gas water heaters; (c) there must be no "pockets" in the pipe leads that conduct hot water from coil to storage tank; (d) there must be a steady "rise" in the leads from coil to storage tank. (Most of the solar water heaters installed in the past thirty years functioned badly or ceased functioning entirely because the above principles were not rigidly observed, or because the coils in the heater box were disarranged in shipping or installation and there were "pockets" formed within the long runs of the coil which prevented the natural rise of hot water above the cold water and there was no circulation of water between the coil and the tank.)

The only difference between a conventional water heater and a solar water heater lies in the fact that it is sun-rays that heat the water, and, obviously, to expose water to the sun-rays for heating, the heater must be placed where the sun-rays strike it. This commonly is the roof of the house, although the heater may be placed on the ground or leaning against the house. But for purposes of safety to the glass which ordinarily covers the coils within the heater, the roof is the best place for it. Here the sun will strike it during the whole day, while on the ground it might not do so. By placing the heater upon a roof it is necessary to place the storage tank slightly higher than is the heater, and to better protect the tank against the adverse weather, it is usually placed in the attic of the house.

The heater functions as follows: (a) a cold water pipe is led from the existing water connections into the tank, same as in furnace coil water heating; (b) hot water to kitchen, bath, etc., is taken from the top of the tank, same as in furnace coil water heating; (c) cold water pipe from the tank to the heater is led from bushing in the tank situated about 5 inches from the tank bottom, in its side; (d) hot water pipe from the heater to the tank is connected into the bushing situated about 6 inches below the top of the tank, in the side of the tank; and (e) the bushing in the bottom of the tank is used for a drain pipe leading down, to be used for draining the tank of water whenever necessary.

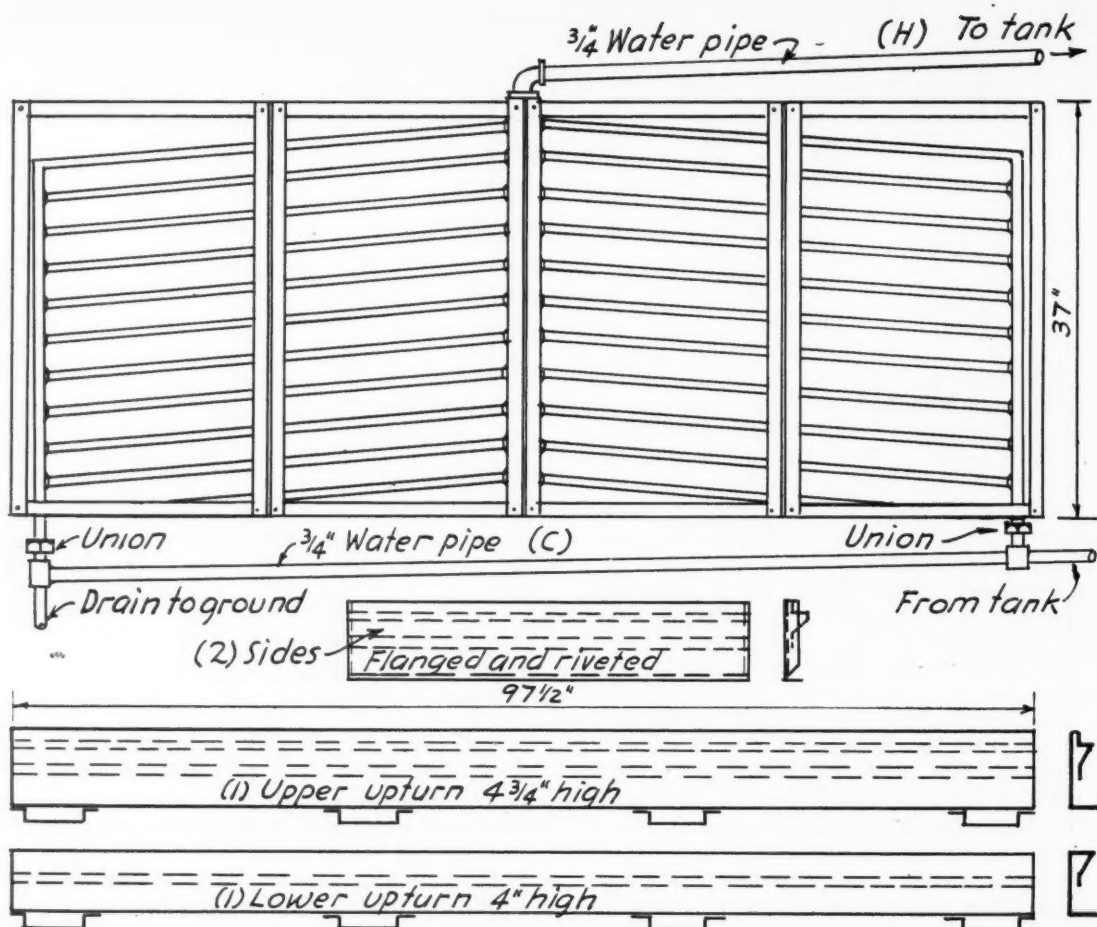


Fig. 1 Solar Water Heater Construction for Northern Climate.

When the cold water inlet valve is opened, the tank fills with water, the water flowing also into the heater coil and filling all pipe connections between the tank and the heater. The coils within the heater box are rigidly connected to a sheet of copper covering the bottom of the box; the sun-rays penetrating through the glass covering the box strike both the coils and the copper sheet, and the heat absorbed by both is conducted to water within the coils. There being a natural rise of hot water above the cold water, the warming-up water in the coils rises upward within the coils and within the pipe leads and gathers at the utmost top of water in the tank. The rising warm water creates a vacuum, immediately filled with cold water from the bottom of the tank. There ensues a steady circulation of the warming-up water to the top of the tank and the cold water from the bottom of the tank flowing into the lowest runs of the heater coil. The fiercer the sun-rays, and the clearer the air, the quicker will be the circulation of water between heater and tank, and the upper half of the tank will soon be filled with really hot water.

The outdoor air temperature measured by a thermometer has nothing to do with the capacity of the solar heater to heat the water to a much higher degree of heat, to steaming hot water eventually, because the circulating water absorbs more and more heat from the sun, and all this heat is gradually stored in the tank. Sun-rays will heat water on really cold, frosty days, because it is the rays, not the temperature of the heater box, that does the heating.

Insulation of the Tank

When the sun sets, there is no longer any heat im-

parted to the heater coils and transmitted to water contained within them. All the hot water that was produced during the sunshiny day is stored within the tank. And because the night may be chilly or there may be wind or rain, which would carry away the heat from the tank, the tank should be heavily insulated. Commonly a square box nailed together from 1 inch thick planks, with holes in the wood for threading in the pipe connections after the tank has been set into the box, is packed with common sawdust poured in through the top, distributed around the tank, and then a lid is nailed on. But nothing (except possibly the cost) prevents the sheet metal man from constructing a sheet metal drum and use it in that same manner instead of using wood. The tank should be insulated as described, using any kind of good insulation material before it is placed in its final position in the attic of the house or on the flat roof of a building. The "right" place is for the tank to be at least 1 foot higher than is the hot water "outlet" from the heater. And care must be exercised that the hot water lead from heater to tank has a steady rise and that there are no "pockets."

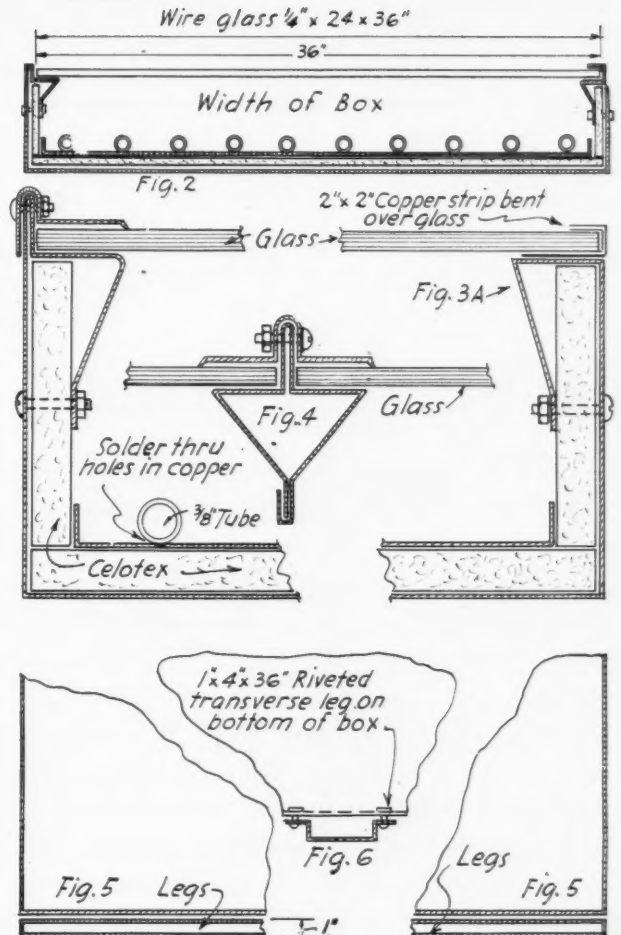
Construction of the Heater Box

This is definitely a sheet metal job (although two-by-fours to which are nailed 3/4-inch boards bottom will do almost as well if the covering glass is secured on the top of the wood to be almost airtight). It is better to construct the heater box of 26-gauge galvanized sheet, in the manner shown in the drawings, although a cheaper construction might be chosen. The construction shown is like that of a skylight, with rigid rests for the glass and bolted strips over the

glass, with putty placed under the glass, to make the interior of the box as much as possible immune to rain and cold and stormy weather.

In Fig. 1 we show the heater complete, with the heater coils placed within the box, connected to the outside leads, but without the glass, which is placed and secured to the box after it has been installed on the roof. It will be noted in Figs. 3 and 4 that the box has provisions on three sides for strips of metal to be bolted to the doubled up metal of the box to cover the glass. This phase of the box construction is identical with skylight construction so it is not necessary to go into details. What needs explanation is the length of the box, shown in Fig. 1, which is 97½ inches; this is so because the glass (skylight glass) comes cut to roughly 24 inches width, and in order to make room between the glass supports for four panels of that glass, we must provide clearance between the doubled metal and the glass. The width of the box is shown to be 37 inches, just so it accommodates the 36-inch long panel of glass. Because a 48-inch wide sheet will not furnish enough metal for the width of the box, it is best to construct the lower side as shown in Fig. 3-A complete, with the bottom 36½ inches wide and the upper side reaching up far enough to receive the doubled metal of a special strip reaching over it and riveted through the three thicknesses of metal, as shown in Fig. 9. In Fig. 9 is also shown the optional way of making the ends to the box by bending up 4¾ inches at each end and putting on the glass supports as described.

In Figs. 2, 3 and 3-A are shown ½ inch thick Celotex lining the bottom, the sides and the ends of the box. When the sheet metal is braced up to form the box as per Fig. 9 and before the corners are riveted and soldered tight, a strip of Celotex is inserted into the lower, already formed side and bolted, as shown in Fig. 3-A. Then the box corners are completed and Celotex is inserted covering the bottom, as shown in Figs. 3 and 3-A, with the side and end pieces holding it down. The upper side and the end strips of Celotex are inserted before the glass-holding-caps are put on. This Celotex is used to insulate the box against outside temperature. As will be noted in Figs. 1 and 6, there are four sheet metal legs riveted on the outside bottom of the box. These legs act principally as stiffeners to keep the box bottom from caving in; they also keep the bottom of the box away



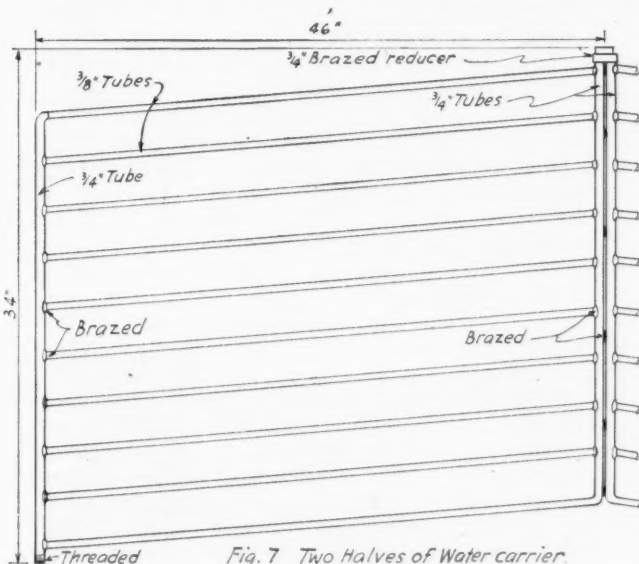
from the roof covering and permit rain water to flow down the roof without the box obstructing the flow.

Construction of Heater Coil

The heater coil was, and still is, causing headaches to constructors and installers of solar water heaters. The California and the Florida heaters, 10 to 12 feet long, are still using coils that extend the whole length, with the runs having only a slight rise, the rise lost upon the least roof sagging or other causes and putting the heater box out of perfect level. Obviously, when the "rise" in the coil-runs is lost, the heater stops working.

Irrespective of how the heater box is constructed, whether of two-by-fours or like a skylight, and how much the tank is insulated, there will be no satisfactory performance if the heating coils are wrongly constructed in the first place or are constructed so that they can lose their necessary "rise." In Fig. 7 we show a tubular heater, ¾ inch I.D. tubes brazed into ¾ inch diameter tubes, the lateral runs connecting the vertical runs having sufficient "rise" to guarantee the heater working well even if it should be placed on the roof without being inclosed in a weather-proof box.

But the heater as shown in Fig. 7 is incomplete. It would work poorly without the tubes being soldered to a sheet of copper, which need not be over 12 ounces. And, because it is extremely difficult to solder tubes to a flat sheet, the sheet is marked accurately with lines marking the center of the tubes as they will rest on the copper, and the sheet is perforated with ⅛ inch holes, 1 inch apart. The completed (and tested under 75 pounds pressure) heater is then placed



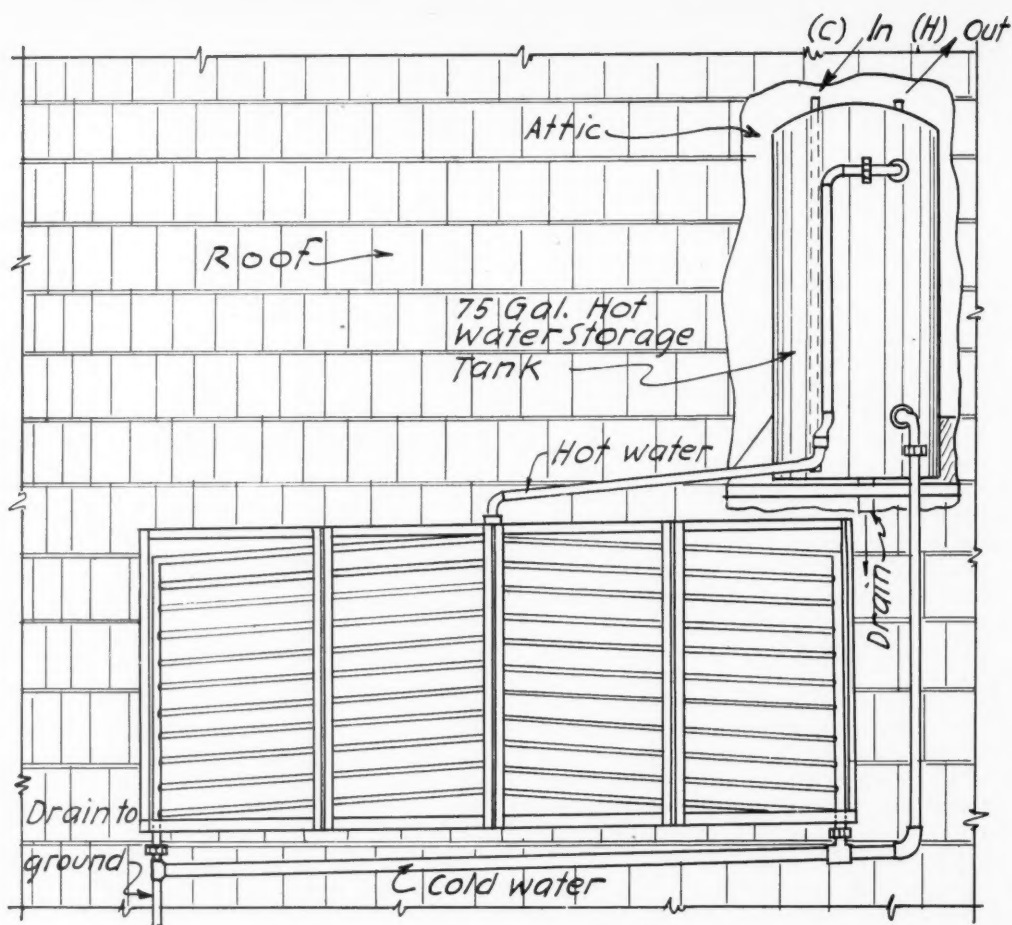


Fig. 8 Most Common Installation

on a bench, the copper sheet is arranged over it, and soldering is done through the holes. Heavy and real hot soldering irons are used to melt the solder in between the holes. The copper should rigidly connect to the tubes all along the tube-runs.

It will be noted in the drawings that there are TWO HALVES of the tubular construction. The first reason is to make the lateral run of the tubes less than 4 feet; the second reason is that the 34 by 46 inch construction can be handled much easier in brazing the tubes. The two halves, reciprocating as to the "rise," guarantee the working of the heater (by at least one-half) if the roof should sag so much that the rise in half of the heater should disappear. The

two halves are brazed in spots, as shown, and a cap is brazed on, acting as a reducer from two $\frac{3}{4}$ inch pipes to only one $\frac{3}{4}$ inch pipe connection. The copper sheet might be soldered on before or after the joining of the two halves, pressing the sheet against the tubes, so that every inch of the tubes, the $\frac{3}{4}$ inch ones and the $\frac{3}{8}$ inch, will be so soldered. In constructing the tubular heater the holes for the $\frac{3}{8}$ inch tubes should be placed so that all the tubes lie flat against the copper sheet. The heater box has been provided with holes for the threaded tube ends shown in Fig. 7 to slide through. The upper side of the box has a hole in the middle, as shown in Fig. 1, and a nipple is threaded through the hole into the brazed-on reducer. When so completed, the heater (tubes and copper) are painted a dull black, the paint containing no oil or fats.

There are at least half a dozen patents granted to constructors of solar water heaters in this country. The patents apply to a particular construction—not to the solar water heater as such, because the principle was known and put into operation years ago. The construction of the heater as here shown and described is not protected by any of the patents and any sheet metal man who feels like it may proceed constructing it, selling it, installing it, using it. He might construct a heater for his own use—for his residence, shop, summer cottage or other. Once he sees that he can get his hot water by these means all through the four months of real sunshine, and that he can get the hot water FREE—at any time of the day or night without starting and tending fires and without the fuel costing him a single cent, he then

(Continued on page 130)

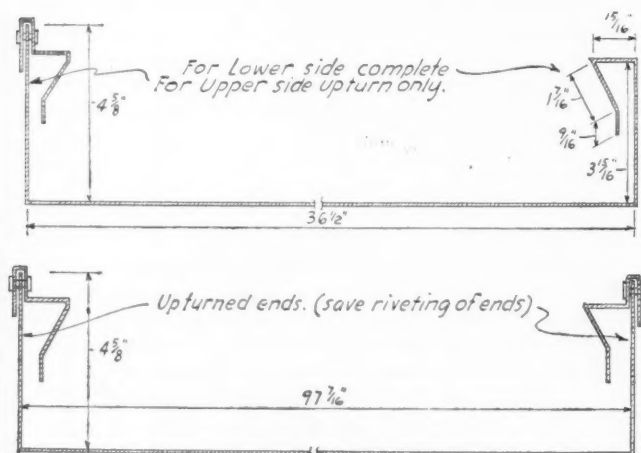
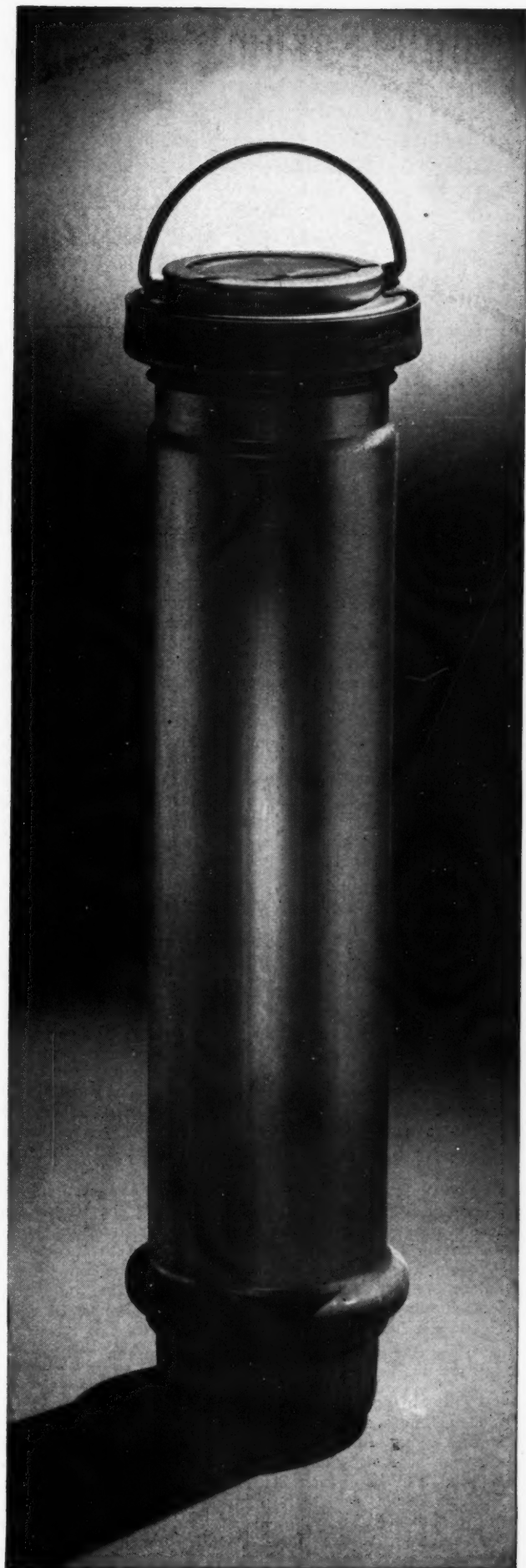


Fig. 9 Layout of 48" Wide Sheet



*Air-tight,
Water-tight,*

Seamless Container formed from Disc

Here's a forming operation to put sheet-steel makers and fabricators on their mettle. This 30-inch-long Mark IX container, designed to hold a 5-inch Navy shell, is air-tight, water-tight and seamless. The body is formed, in a series of deep-draws, from a single disc of .050 gage cold-rolled steel.

Made from Bethlehem sheet steel by Norris Stamping and Manufacturing Co., Los Angeles, the container has performed very well indeed. With its tightly-locked cover, it not only protects the ammunition, but when that purpose has been served, it comes in handy in other ways. It makes a fine water-tight map case. And on at least one occasion, after the sinking of a U. S. aircraft carrier, empty containers proved to be trusty life-preservers.

It takes a lot of sheets to wage a global war. Bethlehem sheets are serving in the war on land and in the air, on the sea and under the sea. And Bethlehem's mills are still rolling at top speed to produce still more sheets for the fighting forces and for essential uses on the home front.

*Bethlehem
Steel Sheets*



I. C. I. Holds Open Forum

Explains Plan of Operation; Calls Upon Industry to Join Together in Achieving Possibilities for Tremendously Increased Volumes; Announces Theme "Controlled Indoor Climate Is The 4th Dimension in Living"

AFTER a year and a half of organization work, The Indoor Climate Institute called all interested members of the heating and air conditioning industry to an open forum in Detroit, September 21 and 22, to see the opportunities in creating in the public mind a desire for greater indoor comfort through controlled indoor climate and to join together in a co-operative movement to do the job.

Well over 200 responded. They heard those who have worked to establish I.C.I. these last eighteen months report on the progress of the organization and explain the possibilities of getting a larger share of the shelter dollar for heating and air conditioning through better selling and proper promotion and publicity. They heard that I.C.I. is not another trade association and not an organization promoting special interests. And, finally, they heard that it is squarely up to the industry itself to decide whether it is all a worth-while objective and one that can be achieved through the kind of co-operative effort that I.C.I. can lead. If so, I.C.I. asked for the kind of support necessary to carry through.

Idea Behind I.C.I.

Paul B. Zimmerman, Airtemp Division, Chrysler Corp., opened the forum with a statement of the basic idea behind I.C.I.—our industry has good, proven products; we have not enjoyed maximum sale because there has been a lack of interest and appreciation of the importance of indoor climate to living among the public, builders and architects; our products will enjoy a tremendously increased sale when, in the form of greater indoor comfort, they are properly presented as one of the greatest contributions to better living. That, said Mr. Zimmerman, can be done through better selling and through proper publicity and promotion. And, he feels, some common voice or medium, such as I.C.I., is needed for this development—to enlist the publishers, the dealers, the builders, the architects, the utilities and all others interested in such a movement. He introduced "Controlled Indoor Climate Is the 4th Dimension in Living" as the theme to carry to the public.

Schanuel Executive Secretary

The industry met A. E. Schanuel, new executive secretary of I.C.I. In his explanation of how to organize the industry's sales story, Mr. Schanuel pointed out that the public has become too complacent about our industry's product, thinks more of bathrooms, kitchens and other home improvements. As a result, the architects and builders accept this complacency and sell heating and air conditioning short. Thus, guidance is needed to create a new demand for better living as supplied by controlled indoor climate. Advertising should be geared to the controlled indoor climate theme and backed up with a master program of education of the public and training for the selling, planning and installing forces of the industry.

J. K. Knighton, Servel, Inc., added his experiences and opinions, which indicated this need for better selling to upgrade the demand for better heating and air conditioning and his belief that I.C.I. is the vehicle.

Raymond M. Foley, Michigan State Director, F.H.A.,

OFFICERS

President, Paul B. Zimmerman—Airtemp Division, Chrysler Corporation, Dayton, Ohio.
1st Vice President, T. A. Crawford—Timken Silent Automatic Division, Detroit, Mich.
2nd Vice President, L. N. Hunter—The National Radiator Co., Johnstown, Pa.
Secretary, R. E. Moore—Bell & Gossett Co., Morton Grove, Ill.
Treasurer, E. N. McDonnell—McDonnell & Miller, Chicago, Ill.

with a background of insuring mortgages on 100,000 homes in his area, stated that the greatest trouble from the viewpoint of the home owner, after he has built his house, is the failure of equipment to come up to expectations. That is overselling, said Mr. Foley, and results from misrepresentation of unqualified people in the business and failure of the manufacturer to come close enough to the dealer and the installation. He agreed that the percentage of the total building cost for indoor climate is too small. In an \$8,400 home, heating has averaged 5.6 per cent. In the \$5,000 bracket, it has averaged 4.3 per cent. However, Mr. Foley believes that housing costs must be kept down and if this industry is to increase its percentage it must sell its benefits ahead of unneeded things the public is now buying, not increase the total cost of the house.

Post-War Market Study

Ralph C. Cameron, director of merchandising, Airtemp, presented a post-war market study which set up the tremendous possibilities ahead for this industry. As an indication, his study predicts in the first five post-war years total sales of 6,350,000 warm air furnaces, 1,550,000 steam and hot water boilers, 1,133,000 conversion burners and 2,468,000 conversion stokers.

With such a background of reasons for and possibilities in a co-operative movement to create a desire for greater indoor comfort, C. T. Burg, Iron Fireman Mfg. Co., closed the open forum by summing it all up. He stated that the industry needs one voice, favoring no specific interests, supplanting no existing organization or association. He emphatically stated that within the I.C.I. plan there are to be no equipment standards, no technical standards, no regulation of installation methods. All I.C.I. intends to do is stimulate a desire on the part of the public for greater indoor comfort. It will do this through education, publicity, local chapter organizations.

Better Heating

If that brings up the question as to what is controlled indoor climate, said Mr. Burg, the answer is the 4th dimension in living. In other words, he believes that a general message promoting heating as a whole, with no reference to kind, can be presented. He thinks the advantages of I.C.I. are that it will help manufacturers and dealers sell more and better equipment; encourage the dealers to "sell up," not skimp; the effort will focus the attention of
(Continued on page 123)

ASSOCIATION

Activities



National

The annual convention of the National Warm Air Heating and Air Conditioning Association will be held at the Hotel Statler in Cleveland, Ohio, on December 13th and 14th. Board of Directors and Committee meetings will be held on December 12th.

The program is being developed. The association suggests that is *not* too early to make hotel reservations. —Geo. Boeddener, Managing Director, 145 Public Square, Cleveland 14.

Contractors' National

The Committee Chairman of the Sheet Metal Contractors' National Association, listed below are ready for your suggestions. Please write to them stating what you believe can and should be accomplished by each individual committee.

Architectural & General Sheet Metal Construction Standards

J. Walter, Chairman, 326 W. Main St., Ottawa, Illinois.

Architects and Engineers Cooperation Committee

J. E. Merrick, Chairman, 800 E. Madison St., Louisville, 4, Ky.

Apprentice Training

Frank Kramer, Chairman, 3145 S. Kinnickinnic Ave., Milwaukee 7, Wis.

Warm Air Dealer Education and Heating Design

Ben Kolbensschlag, Chairman, 3616 N. Grand Blvd., St. Louis 7, Mo.

Ventilating and Blow Piping

Ellis C. Harms, Chairman, 1619 N. Sheridan Rd., Peoria 5, Ill.

Labor Relation Committee

John S. Clark, Chairman, 528 E. Milwaukee Ave., Detroit 2, Mich.

Heating Codes and Local Ordinance

C. Petersen, Chairman, 4118 Cedar Ave., Minneapolis, Minn.

The Sheet Metal Contractors' National Association has issued to members new printed by-laws of the organization in handy pocket-size with stiff paper covers. There are included pages of tables and rules for calculation.

Clarence J. Meyer, National Secretary.

Milwaukee

The Milwaukee Sheet Metal Contractors' Association held an open meeting for active and associate members at the Schroeder Hotel on October 5th, with a turkey dinner at 6:30 p. m., and clear Havanas donated by Milcor Steel Company.

After dinner, President Podolske introduced the three speakers of the evening, representing Inland Steel Corporation:

H. S. Marsh, manager Department of Inspection and Metallurgy

H. W. Browall, Department of Inspection and Metallurgy

B. J. Willner.

Mr. Marsh gave the introductory address on the three color movie pictures illustrating steel from the ore to the finished products. Mr. Marsh had to leave before the pictures were over and Mr. Browall took over. After the pictures, Mr. Browall gave an illuminating address on the steel situation at present and as it appears in the future, followed by questions and answers. Mr. Willner manipulated the movie machine.

Following the movie, members and visitors mingled, visited, some played cards, and enjoyed "The Beer that Made Milwaukee Famous."

PAUL L. BIRSACH, Secretary.

Florida

The August issue of *The Florida Roofer*, published by The Roofing & Sheet Metal Contractors Association of Florida, calls attention to Workmen's Compensation Insurance and the hearing before the Insurance Commissioner of the State of Florida held at Tallahassee on August 7th. An attempt was being made by the organized insurance companies to increase Compensation Insurance rates, but as a result of this hearing and the protests of many business men and associations represented, the Commissioner announces that there will be no increase in rates permitted.

In the past employers have been required to report the full money value of payrolls for the various classifications of labor whether the hours worked were paid for at a straight time rate or an over-time rate. The Insurance Commissioner made effective as of July 1st of this year a ruling that premiums may be charged on only the money value of the payrolls for the hours worked when computed on a straight time pay rate. This ruling will result in considerable savings to employers who have been working men over-time in order to carry on business with a shortage of labor.

Records must be kept to clearly indicate regular rates and hours worked and total payrolls for each classification of labor.

Two Jacksonville firms have been added to the list of members. They are the W. J. Lohman Roofing Co., and A. C. Ferguson Co.—L. A. Burgess, Secretary-Treasurer.

Indiana

A meeting of the Officers and Directors of the Sheet Metal & Warm Air Heating Contractors' Association of Indiana was held in Huntington, Indiana, Friday, Sept. 22, 1944.

It was voted to hold a one-day Convention on Tuesday, February 6, 1945, at Indianapolis, the same as last year.

Speakers for the convention have been arranged for both furnace and sheet metal contractors.

Post War plans will be discussed and we hope to make this convention a real help to our members.—Homer Selch, Secretary.

Obituary

W. G. Burgraeve of Alladen Engineering Company, 7340 S. Halsted Street, Chicago, and president of the Air Conditioning Contractors' Alliance for two terms, died August 27th. Mr. Burgraeve was taken ill in January of 1943 and recovered, but during the year was under observation several times. He was active in many associations connected with heating and air conditioning.

Mr. Burgraeve started the Alladen Engineering Company which will be continued for the time being by his mother, Irene Burgraeve. He is also survived by a sister, Mrs. Mildred Berg.

CONVENTIONS AND MEETINGS

1944

Dec. 13-14—National Warm Air Heating & Air Conditioning Association. Annual. Statler Hotel, Cleveland. Geo. Boeddener, Man. Dir.

1945

Feb. 6—Sheet Metal and Warm Air Heating Contractors' Association of Indiana, Inc. Indianapolis. Homer Selch, Secretary, 946 Hosbrook, Indianapolis 3, Indiana.

Peacetime Opportunities

EMPHASIS for the approximate past three years has been on curtailment of production and sales in the warm air heating industry, because of wartime restrictions. Now, because of war successes, we are gradually raising our sights to the new horizon of peace time opportunities which will mean more sales and more production.

Markets—Advertising—Sales

At the Annual Convention to be held in Cleveland, Hotel Statler on December 13th and the morning of the 14th, the subjects to be presented by prominent speakers will be devoted on the opening day, almost entirely to markets, advertising, publicity, sales and sales promotion. Unless we know what our market objectives are, we manufacturers, jobbers, distributors and dealers, cannot properly shape our long range plans to cover sales and production.

Employment

This business and industry, has an obligation to fulfill in the immediate reconstruction period just ahead. The obligation of employing more people than ever before in all its segments of manufacturing, jobbing and contracting. It will not only meet that obligation by taking advantage of its natural markets but it will through the force of advertising, widen its markets and create at the same time, improved installation practises through dealer area control.

Price Control

It appears that the only possibility that this and many other consumer goods industries may not reach a high degree of re-employment would be because of

short-sighted governmental price control policies. Our government in its desire to prevent further inflation may in fact through too rigid price control create a high degree of inflation. If the prices of manufactured products are held at levels which represent very little if any profits or if they represent losses, production of our products will be limited, thereby curtailing employment and creating inflation because of insufficient supply to meet demands.

Text Book—"Practical Warm Air Heating"

On the morning of the second day of the convention, the new Warm Air-Winter Air Conditioning Manual and other completed sections of the new text book "Practical Warm Air Heating" will be presented as well as other subjects. The new text book based on the opinion of many people will prove to be the most important contribution by the Association to the industry. It will permit manufacturers, jobbers, dealers organizations and associations, and various schools, colleges and universities to promote dealer training and educational programs on a wide scale.

Through national advertising, a consumer demand can be created for Association code installations. And through local area dealer control of installations, this industry can in a few short years, reach the optimum in installation practice.

On the eve of Victory, the challenge to the warm air heating industry is that *it must improve its installation practices*. This is the industry's most important problem. We will have the answers for you to Problem I at the Annual Convention December 13th and 14th. The Statler, Cleveland, Ohio. Come! Advisable to make hotel reservations now.

With the Manufacturers

Penn Builds New Office Addition

Penn Electric Switch Co., Goshen, Indiana, announces that permission was granted by the War Production Board on August 24, 1944, for the construction of additional office space to relieve the present congestion and inadequate facilities for the company's workers. This is the fourth building expansion for Penn since its move to Goshen from Des Moines during the summer of 1937. The first three were factory additions, one in the Fall of 1941, another in 1942, while the third was in the late summer of 1943.

Penn manufacturers automatic controls for heating, refrigeration, air conditioning, pumps and air compressor service as well as safety controls for internal combustion engines.

The new addition will be a continuation of the present office building and will be two stories high measuring 42 feet in width by 74 feet in length and conforms to the present building's architectural style. When completed, the new quarters will house on the first floor, the entire Engineering Department. The new portion of the second floor will be occupied by the Accounting, Cost and Payroll Departments.

The present first floor of the office building will be devoted entirely to the Production Department while the present second floor will house the Sales and Advertising Departments.

Badger Changes Name

The Badger Mfg. & Sales Company, Milwaukee, Wisconsin, manufacturers of filters, announces a change in its corporate name to **Badger Corporation**.

The company, located at 327 East Brown St., Milwaukee 12, Wisconsin, is producing a complete line of permanent filters for industry, institutions and home use, including welding, grease filters and filters for other special uses. There is no change in the officers or personnel.

Metzger Heads Auer Register

George G. Auer has retired as president of the Auer Register Company, Cleveland, and has been succeeded by George R. Metzger, grandson of George S. Auer, founder and original president of the company. Mr. Metzger has served the organization for many years in an executive capacity.

Herbert F. Curtis has been made vice president, and R. E. Brumbaugh, secretary. Both of these men have likewise been identified with the company for some years.

While several improvements will be made in the Auer line of registers and grilles, the management states that previous business policies will continue to be followed.



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Walter G. Jones, plant superintendent and brother of I. L. Jones, International Heater Co., Utica, N. Y., died suddenly on September 26. Mr. Jones was with International Heater for 44 years. He is survived by his wife.

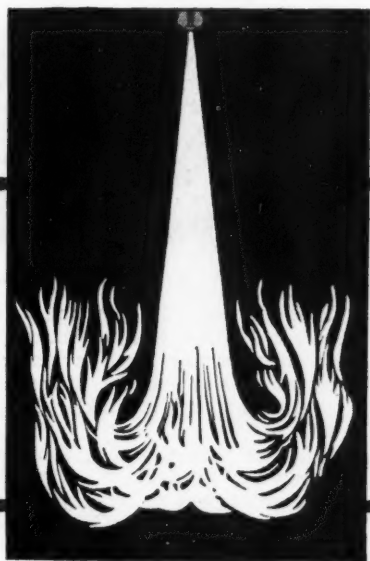
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WAR has created a demand for heating equipment—both for replacement and in new construction—unprecedented in the industry's history. New sales opportunities, yes—but more than that, new *competition*.

Yet distributors of G-E Automatic Heating Equipment can look forward to an important share of this biggest-in-history market. For they have an *exclusive* sales advantage in General Electric wartime research and engineering.

Seldom has so much experience been crowded into so little time. And the G-E heating units of tomorrow will be immeasurably better for it—quieter, more compact and efficient, easier to install, easier to sell—assuring the alert dealer a real profit opportunity in postwar. *General Electric Company, Heating Division, Section 45310, Bloomfield, N. J.*

☆ BUY . . . and hold . . . WAR BONDS ☆



THE FAMOUS DOWN-JET . . . assuring more complete combustion, making more efficient use of every heat unit . . . was a research development that brought new comfort, convenience and economy to thousands of owners of prewar General Electric heating equipment. Out of *current* research will come equally important dealer and owner advantages in the G-E heating units of the future.

Automatic Heating by
GENERAL  ELECTRIC



"CONTROLLED WEATHER"

Hear the General Electric Radio Programs: The "G-E ALL-GIRL ORCHESTRA," Sundays, 10 p. m., EWT, NBC... "THE WORLD TODAY" News, Every Weekday, 6:45 p. m., EWT, CBS

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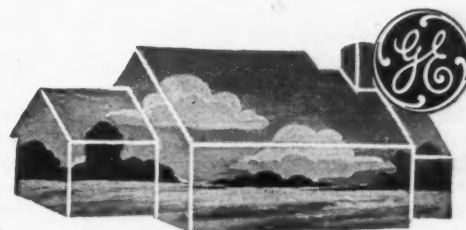
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"CONTROLLED WEATHER"

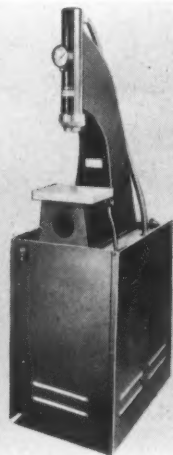
Hear the General Electric Radio Programs: The "G-E ALL-GIRL ORCHESTRA," Sundays, 10 p. m., EWT, NBC... "THE WORLD TODAY" News, Every Weekday, 6:45 p. m., EWT, CBS



△ 62—Hy-Speed Press

Reimuller Brothers Company, 9400 Belmont Avenue, Franklin Park, Ill., is manufacturing new motorized 10 and 20-ton presses—all steel construction and simple hydraulic control.

The Hy-Speed motorized press was created because of the demand for a



popularly priced unit for production line work of marking, forming, notching, pressing, broaching, assembling, and other operations.

A hand lever hydraulic valve controls the ram movement through feed, hold or return position.

The 10-ton press furnishes four complete strokes per minute and the 20-ton furnishes two.

△ 63—Vertical Punches

Thomas Machines Manufacturing Co., Pittsburgh 23, Pa., announces a new standard line of steel plate vertical punches. Electrically welded, these machines are lighter, stronger in frame and offered at lower cost than the cast frame type.

Bulletin 303 has just been issued.

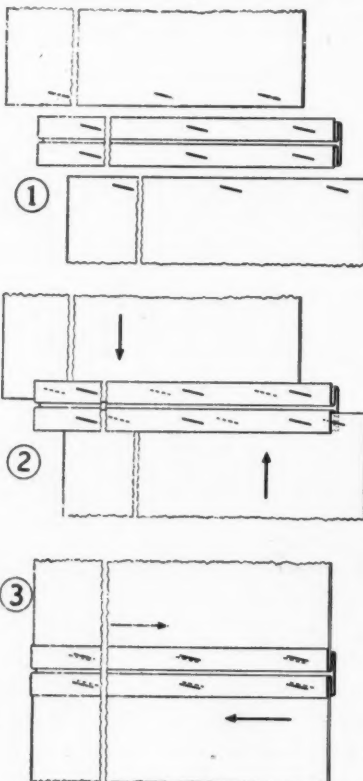
● 64—Brass Rivnut

The B. F. Goodrich Company, Akron, Ohio, announces that the Rivnut is now being made of brass as well as aluminum. Tensile and shear strength of Rivnuts made with the brass alloy are about 50 per cent greater than those made from aluminum.

The Rivnut is a blind fastener which serves as a nut-plate, rivet or both.

● 65—Connector Strips

The Sheetlock Company, 4529-31 N. Clark Street, Chicago 40, Illinois, manufacturers of self-fastening connector strips for non-metallic sheets, is bringing out a new Sheetlock strip for connecting sheet metal—a labor saver. Simplicity in assembly makes possible knock-down shipments. It can be taken apart as easily as assembled without injury to the strip



or the sheet. Tests have proven that this new strip holds as securely as bolts, rivets or screws.

Sheetlock strip can be used wherever sheets of metal are joined—for furnace casings, ducts, shower cabinets, water heater jackets, lockers, metal shelving, casings, cabinets, etc.

This Sheetlock strip is a double channel with indented louvers or notches, spaced uniformly at a 12 degree angle along the sides of the strip. Protruded louvers are made along the edge of the sheets, spaced and angled the same as the strip, as shown in illustration No. 1. The sheets are then pushed into the chan-

nel as shown in illustration No. 2 and slid parallel to the strip until the louvers engage, forming a wedged lock as shown in illustration No. 3.

This strip will come in both flat for straight connections and angle for corner connections.

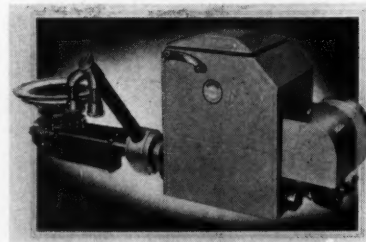
The tools for manufacturing this strip are almost complete and the Sheetlock Company expects to be in production in the very near future. They invite individual problems and samples will be furnished as soon as the tools are completed.

◆ 66—Anthracite Stoker

U.S. Machine Corporation, Lebanon, Indiana, is now producing a line of hopper and self-feed Winkler ash removing anthracite stokers for smaller commercial requirements.

Clinkering type ash residue removal models are being manufactured in larger capacities through 400 pounds of coal per hour.

The Winkler A.R.A. (ash removing anthracite) models, in both hopper and



self-feed types feature the Winkler Inter-Planetary fully automatic transmission, which has no shear pin; a rotating burner head; a screw type elevator; Eez Air fly ash reduction control; and other Winkler design details.

Larger models also feature the Winkler "Inter-Plan" transmission, narrow burners and widely distributed air passage tuyeres. These larger capacity clinkering type units are also available in both hopper and self-feed models.

◆ 67—Ead Motors

Eastern Air Devices, Inc., 585 Dean Street, Brooklyn 17, N. Y., announces two new EAD products—Model J70, 1/50 hp. single phase, 60 cycle, Capacitor Induction Motor, and Model J71, 1/50 hp. single phase, 60 cycle, Capacitor Induction Motor.

4 *WIMMY* SURE-FIRE *WIMMY* ways to boost Fall Profits

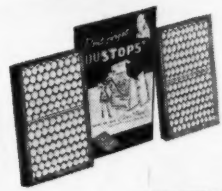
The first step  in this program is to stock


DUST-STOP* Air Filters . They're easy to

sell  easy to install  and they give you


a sweet profit  What's more, FREE dealer

helps make it easy to promote them. Simply display

them  in your windows...send out reminder

postcards  to known prospects...or use

small ads  in your local newspaper. You'll

be amazed at the business you'll get. 

Contact your distributor TODAY!

● Dust-Stops are a "hot" item *right now* and will continue so through the winter. There's still time to get into the business. *Owens-Corning Fiberglas Corp., 1930 Nicholas Building, Toledo 1, Ohio. In Canada, Fiberglas Canada, Ltd., Oshawa, Ontario.*

DUSTSTOP* AIR FILTERS

*T. M. REG. U. S. PAT. OFF.





LOOK—HOMING PIGEON

DID THE
CONCO
PEOPLE SEND
You HERE?



PIGEON: "No, but I'm leaving for the CONCO plant now. So you'd better hurry up!"



DEALER: "Hurry up with what? C'mon now . . . shoo out of here. I'm trying to pick the right post-war heating line."



PIGEON: "I know. That's why I stopped in. Fill out that coupon below and I'll take it along. Don't pick ANY line 'til you have the full story on CONCO!"

SELL CONCO CLASS "A" STOKERS *Now!*

COAL — OIL — GAS-FIRED

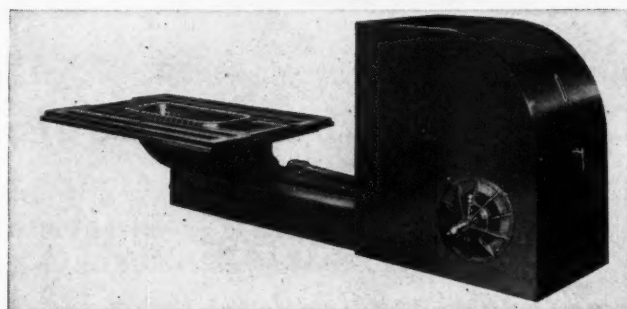
Domestic and Commercial Stokers,
Steel Furnaces, Winter Aircondition-
ers, Conversion Burners, Hot Water
Heaters, Blowers.

CONCO — MENDOTA, ILLINOIS

Send me the facts on your CONCO line of
POST-WAR STOKER EQUIPMENT —

NAME

ADDRESS



We are now building Class "A" Stokers.. Write today for full details on these units — a full range of models and sizes.

CONCO



DIVISION OF
H. D. CONKEY & CO.
MENDOTA, ILLINOIS

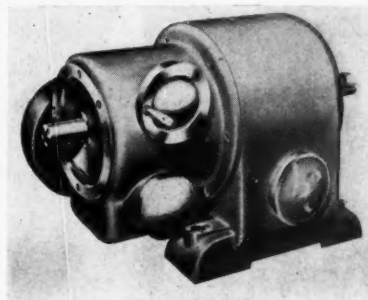
New Products . . (See also page 88)

For your convenience in obtaining information regarding these items, use the coupon on page 94.

△ 68—Variable Speed

Lombard Governor Corporation, Ashland, Massachusetts, offers the Lombard Variable Speed Drive for revitalizing old equipment by replacing belt and chain drive methods of power transmission.

The unit is scarcely larger than the motor with which it is used. The complete unit with the motor has the size and appearance of two standard AC



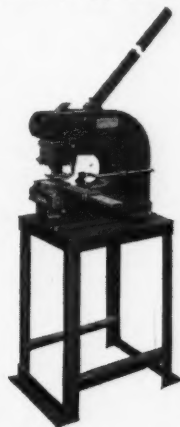
motors coupled together. The gears are totally enclosed and run in oil.

The Lombard Variable Speed Drive uses the V-belt as a control medium only—primary speed reduction being accomplished by conventional gearing methods.

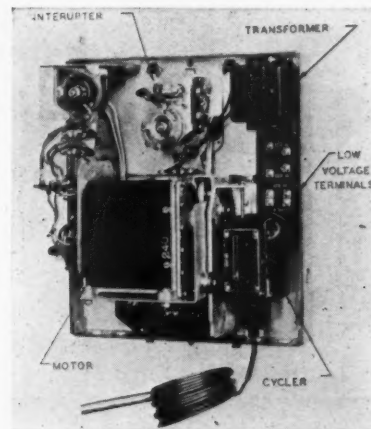
69—Punch

Whitney Metal Tool Company, 110 Forbes St., Rockford, Illinois, has developed a new lever type hand-operated punch.

This new lever-type punch combines



the powerful geared action of the No. 4 angle iron shear and the versatility of Whitney foot presses. It is made in four throat depth—7, 10, 18 and 24-inch—punching capacity ½-inch through 3/16-inch or 1½-inch through ⅛-inch mild steel.



70—Moduflow Panel

Minneapolis-Honeywell Regulator Company, 2726 Fourth Avenue South, Minneapolis 8, has released the accompanying illustration of their Reset Method-Moduflow Panel, designated as W102A, announced almost a year ago. It is a universal panel in that it contains all the necessary parts, including the wiring connection terminals for both high and low voltages that are required. In addition, the Reset Panel permits either 24-hour operation of the heating plant at a constant thermostat temperature or lowered night temperature.

Moduflow provides a balanced heat input to offset heat loss and eliminates stratification, drafts and cold floors.

*There's
an*

AIRTHERM Direct Fired Unit Heater in a Size to Heat Your Plant Efficiently, Economically . .



The Airtherm Direct Fired Unit Heater is made in 6 sizes, from 300,000 to 1,700,000 BTU, to assure you efficient, uniform heat regardless of your floor plan. It spreads heat evenly as far away as 200 feet. The Airtherm can be installed in just a few hours without costly duct work, radiators, or pipes.

Airtherm Direct Fired Unit Heaters have reduced heating costs in many plants in which they have been installed.

Let us work with you in planning efficient heat for your plant. Write today for bulletin describing the complete line of Airtherm Direct Fired Unit Heaters.

AIRTHERM
MANUFACTURING COMPANY

706 South Spring Avenue • Saint Louis 10, Missouri

Trimtherm



**TOMORROW'S
THERMOSTATS**

Today!

- **T-80 SERIES**
Trimtherm Thermostats are designed for all-gas control systems.
- **ACCURATE REMOTE CONTROL**
of desired room temperatures.
- **SURFACE MOUNTING**
with flush, streamlined appearance; no recess in wall.
- **1/2° DIFFERENTIAL**
Without false heat input.
- **MODERN DESIGN**
Harmonizes with room appointments.
- **PLASTIC BASE**
Thermally isolates thermostat from wall.
- **VISIBLE MARKINGS**
All calibrations easily read.
- **ADJUSTMENT ON COVER**
No wall smear.



**AVAILABLE
IN PACKAGE
SETS**

● **T-80 SERIES THERMOSTATS** are also available in Package Sets, together with B-60 gas control with tamper-proof cover and integral pilot valve assembly; 30 feet of wire; and thermocouple pilot generator. *Everything needed*, in a convenient package, for quiet, safe, automatic control of central and floor furnaces, boilers, radiators, gas ranges and water heaters.

WRITE FOR CATALOG 52

GENERAL

301 ALLEN AVENUE

BRANCHES: Atlanta, Boston,

CONTROLS

GLINDALE 1, CALIF.

Philadelphia, San Francisco,

Denver, Chicago, Kansas City, New York, Cleveland, Detroit, Dallas

Distributors in Principal Cities

New Literature

For your convenience in obtaining copies of New Literature use the coupon on page 94

290—Heavy Duty Steel Furnace

The Majestic Co., Huntington, Indiana, is distributing a new bulletin covering the 600 Series Majestic Heavy Duty Steel Furnace—a double-welded all-steel furnace—both gravity and forced air.

291—Smith's Cleat Benders

R. E. Smith, 1513 Monroe Street, Waukegan, Illinois, is distributing a folder illustrating and describing Smith's Cleat Benders—a device for making drive cleat edges on the ends of square pipe and fittings.

292—Vertical Punches—Bulletin 303

Thomas Machine Manufacturing Co., Pittsburgh 23, Pa., is announcing their new standard line of steel plate vertical punches in Bulletin No. 303. Heavier cast frame punches are also fully illustrated, with close-ups of floating punches, gaged punching units, shearing attachments, and special tool set-ups. Also given are tables of punching pressure and machine capacity.

293—Mineral Wool, Commercial Standard

National Bureau of Standards, U. S. Department of Commerce, Washington 25, D. C., offers CS 117-44 which was accepted by the trade as its standard of practice for new production of Mineral Wool; Blankets, Blocks, Insulating Cement, and Pipe Insulation for Heated Industrial Equipment (for high-temperature installations) beginning May 25, 1944.

This booklet is for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Price, 10 cents.

294—Fabricating and Engineering

The Riester & Thesmacher Company, 1526 West 25th Street, Cleveland 13, contractors for sheet metal and building products, and manufacturers of special steel equipment, metal cases and cabinets, is distributing a four-page folder illustrating and describing their ability to fabricate difficult sheet metal products in quantity and to exact specifications.

Company engineers offer to redesign products for sheet metal and to produce a fabrication that will compare favorably with the original. Difficult designing and sheet metal engineering problems are being solved. Facilities are complete for all types of fabrication and for assemblies relating to products.

295—Welding Symbols Chart

The Hobart Brothers Company, Hobart Square, Troy 1, Ohio, announces a new welding symbols chart illustrating the use of welding symbols used as American Standard by The American Welding Society.

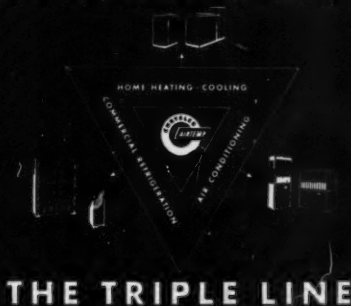
The graphical language of the welding industry is illustrated separately for Fusion Welding, for Resistance Welding, and for those requiring both Fusion and Resistance Welding. The location of the Symbols, numerical and other data on the reference line always has definite significance and this is illustrated to show the standard manner of placing proper information on the Symbols.

Twenty-three typical welded joints and sections, covering butt welds, lap welds, tee welds, corner welds, and edge welds, are well illustrated and marked with the standard welding symbols applying.

When structures, the failure of which would endanger life and property, are to be welded, simple and specific means must be used to convey the ideas of the designer to the welding shop.

SELL YEAR 'ROUND AIR CONDITIONING

Basic markets are based on human needs. Excessive heat in summer can be as injurious as excessive cold in winter. Summer cooling, a new, dependable addition to home comfort, will bring greater health and efficiency to the entire family. Chrysler Airtemp, therefore, believes heating dealers can assure themselves a new source of increased revenue and 12 months profitable operation by selling year 'round air conditioning.



CHRYSLER AIRTEMP OFFERS A TIME-TESTED YEAR 'ROUND SYSTEM TO HEATING DEALERS

As soon as civilian products are made available, Chrysler Airtemp will again provide heating dealers with a time-tested winter and summer air conditioning system within the reach of even modest homes.

The public is anxiously awaiting the many benefits of cool, clean, dry air in summer. The unit is simple to install as an integral part of a forced warm air furnace. The combination will find an ever increasing market in postwar remodeling and new home building.

A whole new source of increased revenue, resulting from this popular demand for year 'round air conditioning, will give Chrysler Airtemp dealers a definite

stabilizing factor for 12 months profitable operation.

Direct dealer contracts will be available for just the Chrysler Airtemp heating line—or for heating in combination with cooling or commercial refrigeration—or for all three of these great business-building lines. Airtemp Division of Chrysler Corporation, Dayton, Ohio. • In Canada, Therm-O-Rite Products, Ltd.

The Indoor Climate Institute is making the American Public Conscious of the Need for Greater Indoor Comfort and Health.



Next Month's Advertisement Will Be Devoted To Summer Cooling

Buy More War Bonds! Tune in Major Bowes every Thursday, CBS, 9 p.m., E.W.T.

CHRYSLER  **AIRTEMP**
HEATING • COOLING • REFRIGERATION

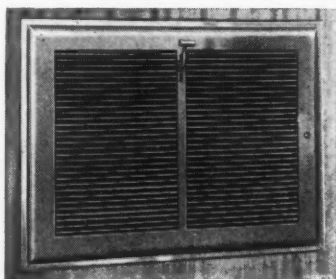


H&C No. 130 Baseboard Register

The "Blue Ribbon" BASEBOARD Line for both Gravity and Reconversion!

A nifty looker in rich Metalustre finish. Designed for streak-proof installation, with register valve that stays put in any position even when used for forced air. Flexible fin type face. Quality workmanship evidenced in every detail. Isn't that the kind of quality representation you'd like to leave on every job, both now and postwar? Well, it's as simple as standardizing on H&C. And it costs you nothing, for though H&C registers are premium quality, they are competitively priced.

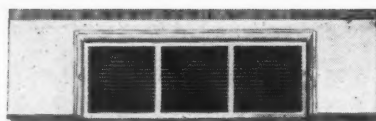
Items Now Being Manufactured: Gravity items Nos. 210, 265, 130, 330, 623, 653, 550, 2250; A.C. Designs Nos. 69, 74, 75 and 88. Also complete accessory line. See catalog No. 42 for details.



H&C No. 330 Sidewall Register



H&C No. 623 Return Air Intake



H&C No. 653 Return Air Intake



HART & COOLEY MANUFACTURING CO.

**World's Largest Manufacturers of
Registers, Grilles, Furnace Accessories
HOLLAND • MICHIGAN**

New Literature

For your convenience in obtaining copies of new literature use the coupon on this page.

296—Ead Control Devices

Eastern Air Devices, Inc., 585 Dean Street, Brooklyn, N. Y., is distributing a 12-page catalog covering their EAD Control Devices for electronic, electrical and mechanical applications. The booklet pictures and describes the experimental laboratory, engineering, production tooling and machinery, precision, boring, grinding, machining, winding, inspection and factory testing.

297—Odor Control

W. H. Wheeler, Inc., 234 E. 46th St., New York 17, offers a 62-page booklet on the application of "Airkem" a chlorophyll air freshener for air conditioning, ventilation, and exhaust systems.

Among the subjects discussed are ventilation requirements, odor control by this method vs. dilution with outside air, reduction of first and operating costs, action of this product on an air conditioning system, estimating its consumption, and "Transpar" evaporator, its installation and servicing, and with a report on how the product works by Dr. W. D. Turner, professor of chemistry, Columbia University. Also, a leaflet briefly describing this product and its use in air conditioning systems, and with a listing of users. Also a booklet of testimonial letters from users of the product.

298—Spot Welders

Eisler Engineering Co., Newark, New Jersey, has just published a new 58 page catalog No. CE-44W, entitled "Spot Welders," showing all types of standard and many special resistance welding machines manufactured by Eisler, in the capacity-range from 3-KVA to heavy duty models up to 500-KVA.

The new catalog with over 300 illustrations and diagrams displays pictures of individual foot, air and motor operated welders, shows application and installational views and gives specifications, operating and technical data on the particular type of the various models, generally employed in the diversified industries with heavy duty work. Included is also an instruction welding chart.

Some chapter headings being as follows: Air Operated Spot Welders with adjustable special arms and welding tips for unusual welding operations; Universal Spot and Seam Welder (200 KVA); Multiple Spot Welders with pressure electrodes; Butt Welders, light and heavy duty type; Gun Welders of all kinds; Transformers; Contract Job Spot Welding Service; Eisler Welding Tips.

The catalogs cover the development of 25 years of specialized experience in designing and manufacturing of all types of resistance welding machines.

FOR YOUR CONVENIENCE

American Artisan, 6 N. Michigan Ave.
Chicago, Ill.

Please ask the manufacturer to send me more information about the equipment mentioned under the following reference numbers in "New Products" and "New Literature." (Circle numbers in which you are interested):

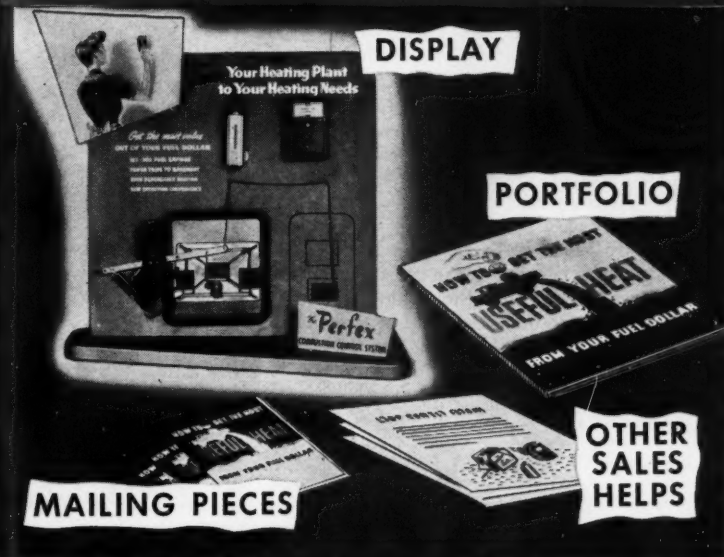
62	63	64	65	66	67	68	69
70							
290	291	292	293	294	295	296	297
298							

Name
Company
Address
Are you Manufacturer.....Jobber.....Dealer.....

here's how **YOU** can make fuel-saving A PROFITABLE BUSINESS

Feature the *Perfex* Combustion Control System

Here are big fuel savings and new heating performance for hand-fired heating plants. Includes the Perfex Barometric Draft Control, with Thermo-Draulic Damper Operator attached . . . the Perfex Magic Dial Thermostat . . . and the Perfex Limit Control. Give your customers these features now: Savings of 10 to 25% in fuel costs; reduced clinker formation; even, comfortable temperatures . . . this year and many years to come. Not merely a "regulator set"—but a tuning system for heating plants that keeps the draft at the exact rate to suit the size of the heating plant, size of building, and type of fuel used. The square-type draft control features new strap-type hinges that can't clog or corrode.



Powerful Sales Help! Get this New Merchandising Package

DISPLAY—Colorful, sturdy display built around the Combustion Control System—wired for actual operation. Just plug into wall socket . . . the system automatically regulates draft control vane and miniature damper door included on display.

COUNTER PRESENTATION—A rapid-fire review of the system in simple, straight-forward style, beautifully printed in color, for point-of-sale use at the counter, also for your sales calls at customers' homes.

DIRECT MAIL PIECE—Small rendition of large portfolio, for your mailing purposes. Space for imprint.

OTHER SALES HELPS—Radio announcements, sales letter, news story for local papers, newspaper mat of system.

*Fuel-Saving
Starts With*
CONTROL



Perfex CORPORATION
422 W. OKLAHOMA AVE., MILWAUKEE 7, WIS.

Please rush full information on your new
Combustion Control System and Merchandising
Kit, and prices.

Name.....

Address.....

City..... State.....



*You've probably heard about
PRETZEL BENDERS but—
**HAVE YOU EVER SEEN A BIN-FEED STOKER
THAT FEEDS COAL FROM EVERY ANGLE??***

● Unless you are acquainted with the Pocahontas Bin-feed stoker, we know you've never seen anything like it. It's the only Bin-feed stoker on the market that feeds coal from any angle and distance. Think for a minute of how many more sales you could make with this remarkable feature!

In addition to the Universal Khuckle, there's the exclusive "Lifetime" chrome alloy retort which ends frequent retort replacements, the "O.P." coal collector that permits the use of low price slack coal—and for the future—the famous Bin-feed Ash Removal domestic stoker now nationally advertised and already used by thousands.

Yes, Mr. Dealer, it will pay you to investigate—

WRITE NOW!

POCAHONTAS FUEL COMPANY INCORPORATED

338 EAST 131st STREET
CLEVELAND 8, OHIO

"ORIGINAL"

POCAHONTAS
THE STOKER OF TOMORROW-TODAY!

With the Manufacturers

Coleman Holds Sales Conference

Coleman Lamp and Stove Company, 248 N. St. Francis St., Wichita, Kansas, entertained recently 113 Coleman heating appliance distributors and their salesmen at a two-day conference. Coleman heating appliances—stoves and furnaces—are adapted to the mass market of homes cost-



ing less than \$7,500, in a variety of sizes and styles and models for gas, oil and butane gas fuels.

R. C. Goddard, Vice President, Combustioneer Division of The Steel Products Engineering Company, Springfield, Ohio, announces three new executive appointments:

C. P. Meredith, until recently Executive Assistant in Charge of Postwar Development of the company, now heads Combustioneer's selling organization as General Sales Manager for the Combustioneer Stoker Division.

H. E. McCampbell, since 1931 Manager of the Service Department, is now Combustioneer Commercial Sales Manager.

C. G. Brelsford, for the past seven years traveling Service Engineer, is the new manager of Combustioneer Service Department.

R. W. Conkey, Vice President, Conco Engineering Works, of Mendota, Illinois, announces the appointment of Walter Sormane as general sales manager. Mr. Sormane was formerly sales manager of Schwitzer-Cummins Company, and was recently reelected vice president of the Stoker Manufacturers Association for a second term. He is a member of the Stoker Industry Advisory Committee appointed by the War Production Board and is an associated member of the American Society of Heating and Ventilating Engineers.



Walter Sormane

Vice President J. Harry Christman, who has been in charge of Milcor Steel Company's Chicago branch since 1936, has been assigned new duties connected with special sales problems and merchandising policies, according to an announcement by President E. A. Tanner.

Byron B. Barker, with the company since 1931, has been named manager of the Chicago branch.

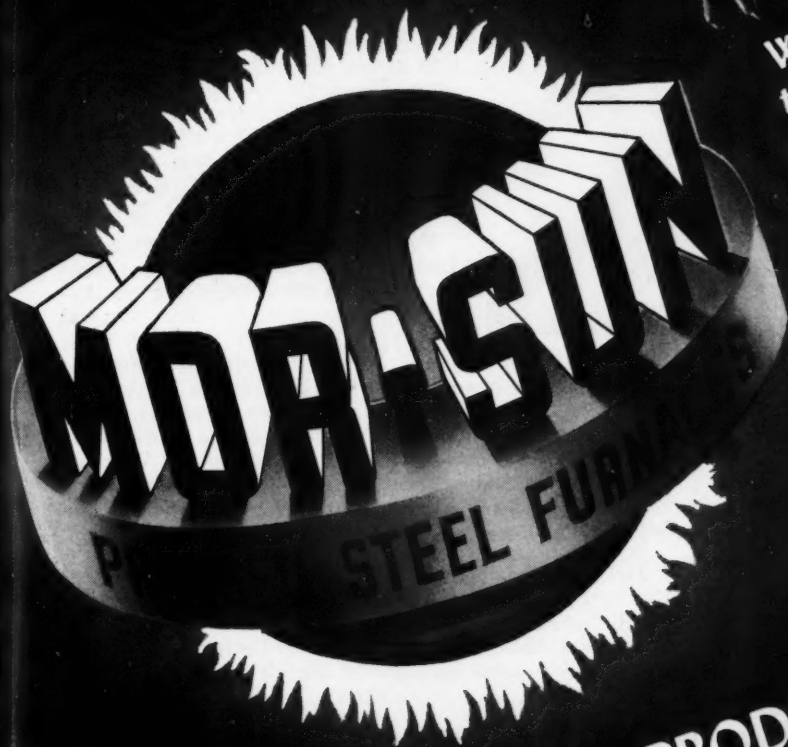
Don L. Rossiter, one of the Ohio sales representatives of Milcor for many years, has been appointed District Sales Manager of the Canton, Ohio, Branch, Milcor Steel Company.

Hammel Radiator Engineering Company, Los Angeles, manufacturers of gas heating equipment, announces the addition of Fay Suffron as research engineer. Mr. Suffron is a former member of the research staff of the American Gas Association.

BROTHER, WHEN THAT DOVE LANDS..



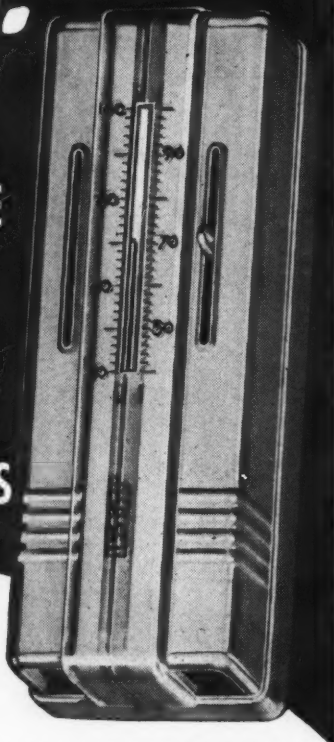
When the dove lands--when the great day comes--all our experience, all our added knowledge gained from war production--will combine to give you something extra special--the new MOR-SUN line of Pressed Steel Furnaces for all fuels...plus an interesting mutually profitable dealer-manufacturer policy... Keep your eye on the MOR-SUN emblem!



MORRISON STEEL PRODUCTS, Inc., Buffalo 7, N.Y.
"The Sun Never Sets with MOR-SUN!"

SELL
COLD-WEATHER COMFORT

NOW
WITH
DEPENDABLE
Gleason-Avery
THERMOSTATS

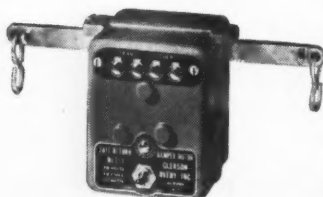


● Accurate, controlled heating . . . trouble-free performance and positive safety provided by Gleason-Avery Thermostats assure winter-long comfort, complete customer satisfaction. Smartly finished in lustrous, easy-to-clean Mirror-Lite, G-A Thermostats blend in to any decorative scheme. Finger-tip adjustments and synchronized settings afford simple operation, one-degree sensitivity. Quickly installed; especially designed for hand-fired heating plants.

No. 130 Furnace Sentry Unit Package for hand-fired domestic heating systems is complete with thermostat, damper motor and all accessories, ready to install.

LIST PRICE \$19.50

Direct orders accepted when accompanied by wholesaler's name.



G-A Damper Motor, with exclusive Straight Line Control and Spring Return can be mounted in any position; provides accurate draft regulation. No sprockets or rotating arms to get out of order; no danger of overheating.

Gleason-Avery, INC.
AUBURN, N. Y.
A RELIABLE NAME IN TEMPERATURE CONTROLS

With the Manufacturers

Bressler Heads Kol-Master Corporation

Kol-Master Corporation, Oregon, Illinois, has elected R. E. Bressler, former vice president and chief engineer, as president and treasurer to succeed the late Jos. F. Reed, Henry G. Wickham was elected vice president, and Jos. C. Reed, secretary. All were elected to the Board of Directors.

Kolmaster produces residential commercial and industrial automatic underfeed stokers under patents granted to R. E. Bressler.



R. E. Bressler

George W. Hyre, advertising manager of The Pacific Coast Co., Seattle 7, Washington, announces a program of expansion in the Heating Equipment Division of the Pacific Coast Coal Co., a subsidiary of The Pacific Coast Company.

Their Post-War Planning Committee reached a decision to expand the operations of the present Heating Equipment Division to include a larger field of operations, since with the company's many years of engineering experience, personnel, finances, and warehouse facilities, they are in a position to expedite distribution to dealers in the Pacific Northwest and Alaska. Besides present lines of heating equipment which includes both oil burning and coal burning equipment and allied appliances, other similar domestic and industrial equipment and supplies will be distributed.

L. E. Gosling, formerly of the Heating Equipment Co., Portland, Oregon, has joined the organization and is manager of the Heating Equipment Division in Portland. Mr. Gosling is well known to the Trade throughout the Oregon and Southern Washington territory.

A. B. Banowsky, for thirteen years associated with the United Gas System, a natural gas utility operating in Texas, Louisiana and Mississippi, and for six years its Commercial and Industrial Sales Manager, has been appointed Manager, Retail Division, Payne Furnace & Supply Co., Inc., with headquarters at "Payneheat's" general offices in Beverly Hills, E. L. Payne, president, announces.



For the past eighteen months Mr. Banowsky has been acting chairman of the AGA Sub-committee on Approval Requirements for Central Heating Appliances; and for three years, chairman of the Duct Furnace Sub-committee. Recently, he has been active in the Gas Industry's work on standards for post-war heating installations. In Houston, he was president of the South Texas Chapter of the American Society of Heating and Ventilating Engineers and a member of the Houston Engineers' Club. He assumed his new duties with "Payneheat" on September 1.

Jack Jones has been appointed Special Sales Representative by Penn Boiler & Burner Mfg. Corporation, Fruitville Road, Lancaster, Pennsylvania. Mr. Jones was formerly manager of the New York branch for Perfex Controls and prior to that sales manager of the oil burner division of Malleable Iron Fittings Company, Brantford, Connecticut.

C. W. Cornelissen has joined Williams Oil-O-Matic Heating Corporation, Bloomington, Illinois, as Manager of Heating Sales. He was formerly associated with Harvey-Whipple, Inc., Springfield, Massachusetts in the capacity of Sales Manager.



"Since 1866"

Postwar Preview OF

WEIR-MEYER Modern Heat



- ☆ A complete line of STEEL Furnaces and Air Conditioners for coal, gas, oil.
- ☆ Air Conditioners with provisions for cooling in Summer.
- ☆ Equipment incorporating a new principle of burning solid fuel.
- ☆ Complete range of sizes and prices to fit every need.
- ☆ Modern design to harmonize with Modern homes. Eye-appeal styling.
- ☆ Basic, and many exclusive principles proved best and most practical in over three generations of experience.
- ☆ Finest quality and workmanship that have given WEIR-MEYER leadership in the heating equipment field.

If you are truly interested in serving your community with heating equipment that will capture post-war markets and win enthusiastic customers, decide now to sell WEIR-MEYER Modern Heat. Inquiries solicited.

THE MEYER FURNACE COMPANY

manufacturers of

WEIR and MEYER FURNACES—AIR CONDITIONERS

FOR
COAL - OIL - GAS
Peoria 2, Illinois

WEIR-MEYER MEANS Modern Heat

Kruckman— Federal Payroll

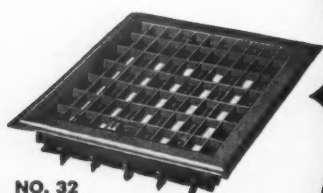
(Continued from page 52)

ished. OWI, the distributor of information, a well padded organization headed by Elmer Davis, has just announced it will release 150 workers in New York and London, and since public relations people are in high demand in Government, those who wish Government jobs will have no trouble. WPB Labor Division is to be whittled down, but the Department of Labor is hunting more people. OCR has already cut its force considerably the past six months and may cut more when it can afford to release them to other agencies. ODT recently announced a 20 per cent cut of 1,000 persons, mostly in the field. This reduces its payroll by \$2,000,000. But in all probability these 1,000 simply transfer to OPA, which takes over the job of gas rationing for commercial vehicles. Meanwhile, 4,000 remain on ODT rolls. The Office of Censorship, one of the best and most efficient war agencies under Byron Price, will be cut after the German war ends, but not in Washington. The estimate we most generally hear about the over-all Government cut when both wars are over is the suggestion that 80,000 of Washington's 500,000 will be dropped. Those in the know say the cut really will be something like 25,000. They tell us the total cut in all agencies everywhere will be something between 1,000,000 and 1,500,000. And they explain the bulk of the cut will be among Army and Navy civilian workers employed in arsenals, ordnance plants, Navy shipyards, and Maritime and

War Shipping, mostly skilled workers like those employed in private plants.

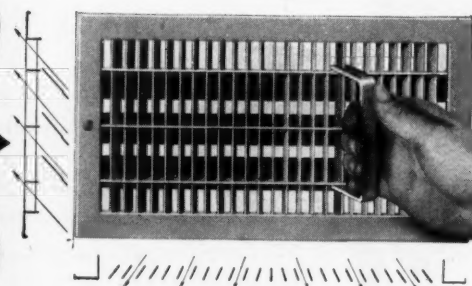
It is interesting to hear the opinion of Arthur S. Flemming, Civil Service Commissioner. He told a meeting here the other day he saw in prospect a larger permanent payroll stemming from demobilization, "thousands in war agencies must go into expanded old-line agencies or in permanent new agencies." He expects a cut after the German war and a steeper cut after the close of the Japanese war. Flemming candidly tells us he is certain 2,000,000 people who came into Government war jobs the past three years must remain as career Government workers in the permanent agencies. He made it clear, however, that those who fill the jobs of veterans must step aside for those who return, and that the veterans who have not hitherto been employed by Government will have priority over those who came into civilian jobs during the war. The disabled vets who wish to obtain Government jobs will have the top preference. During the tighter days of war production no one in civilian Government jobs could leave. Now, however, those in the brass hat brackets have been told they are free to take other jobs, while the stenographers and those in comparable classifications have been told they are not yet free to move out. Flemming also made clear that workers in Government-owned plants, on Government payrolls, will be affected by reconversion and cutbacks just the same as are the workers in private plants and shipyards. The chief difference seems to be that those on Government payrolls have been underpaid according to private standards and are not entitled to unemployment benefits.

It is curious that very few people even in Government appear to know that the new Office of War



NO. 32

INDEPENDENT
"Fabrikated"
REG. U. S. PAT. OFFICE
REGISTERS • GRILLES
COLD AIR FACES



NO. 321A

ALWAYS LEADING—ALWAYS PROGRESSING



● Only products of proved dependability can attain leadership. The quality of INDEPENDENT "FABRIKATED" Grilles and Cold Air Faces is backed by 46 years of manufacturing experience in the register field.

Join the parade to greater post-Victory profits by concentrating on the extensive INDEPENDENT line to meet all requirements for air conditioning and warm air heating registers, cold air faces and grilles—all from one source of proved dependability.

No. 32, illustrated, is a "Fabrikated" register with

multiple valves for use in the floor in furnace installations.

No. 321A wall grille with deflecting vanes is a directed air flow "Fabrikated" grille with bars that can be adjusted individually to direct air flow to the right, left or fanwise, as illustrated. Horizontal deflecting vanes in back may be individually adjusted to give upward or downward deflection of air flow.

Send for catalog showing the wide variety of the complete INDEPENDENT line with many improved exclusive features.

THE INDEPENDENT REGISTER CO.

3747 EAST 93RD STREET, CLEVELAND, OHIO

ARCHITECTS SELECT

Copper

FOR POSTWAR HOUSES

75% chose copper for flashings
65.2% chose copper for gutters
71% chose copper for downspouts

INTERVIEWS with leading architects in 18 cities from coast to coast indicate that the revival of home construction after the war will be accompanied by a marked public demand for high quality building materials. For example, copper and copper alloys received most frequent mention among construction metals in moderately priced homes.

This professional preference for copper will have an important bearing on the use of this non-rust metal in postwar building. It indicates that, regardless of the price class of the home to be built, the protection of copper is looked upon as an economic necessity—cheaper in the long run than other less durable materials.

4453

BUY WAR BONDS . . . Buy more than before to shorten the war.



Anaconda Copper & Brass

THE AMERICAN BRASS COMPANY—General Offices: Waterbury 88, Connecticut
Subsidiary of Anaconda Copper Mining Company—In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ont.

MASTER

TEMPERATURE CONTROLS

For Over
Twenty-five Years
Widely Known for

Leadership

Dependability

Efficiency

Quality

Long Service



When the nation no longer needs our skill, experience and facilities for the making of important electrical items for the Navy and Air Corps, we shall be able to return with full capacity to our regular line of Master controls, along with many new and improved items that are now being planned.

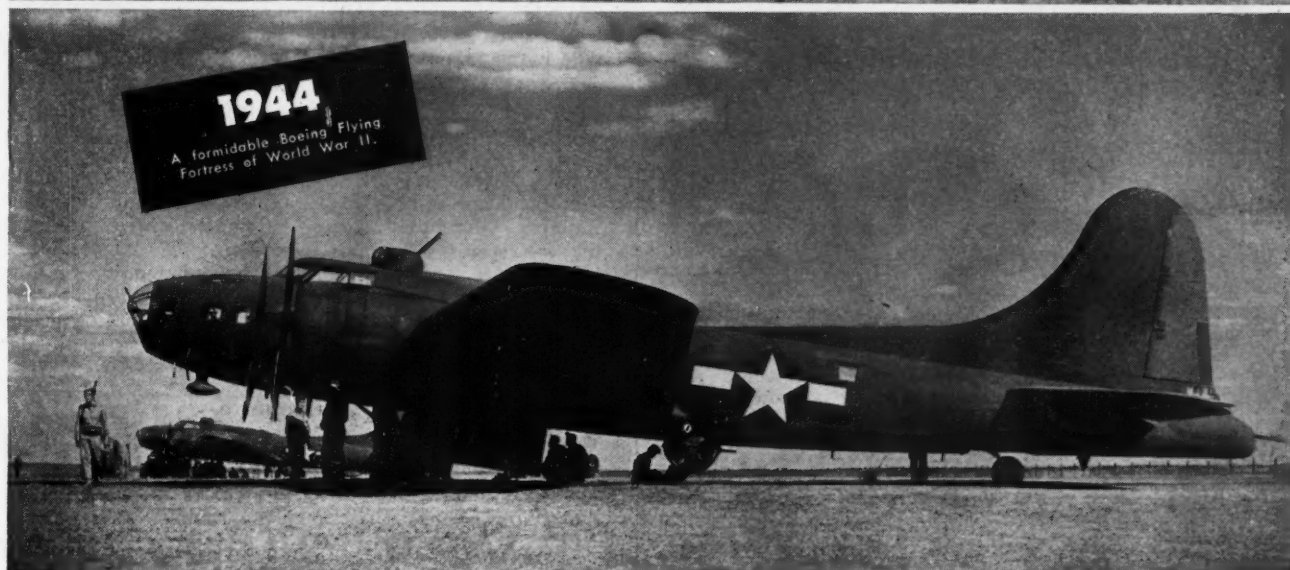
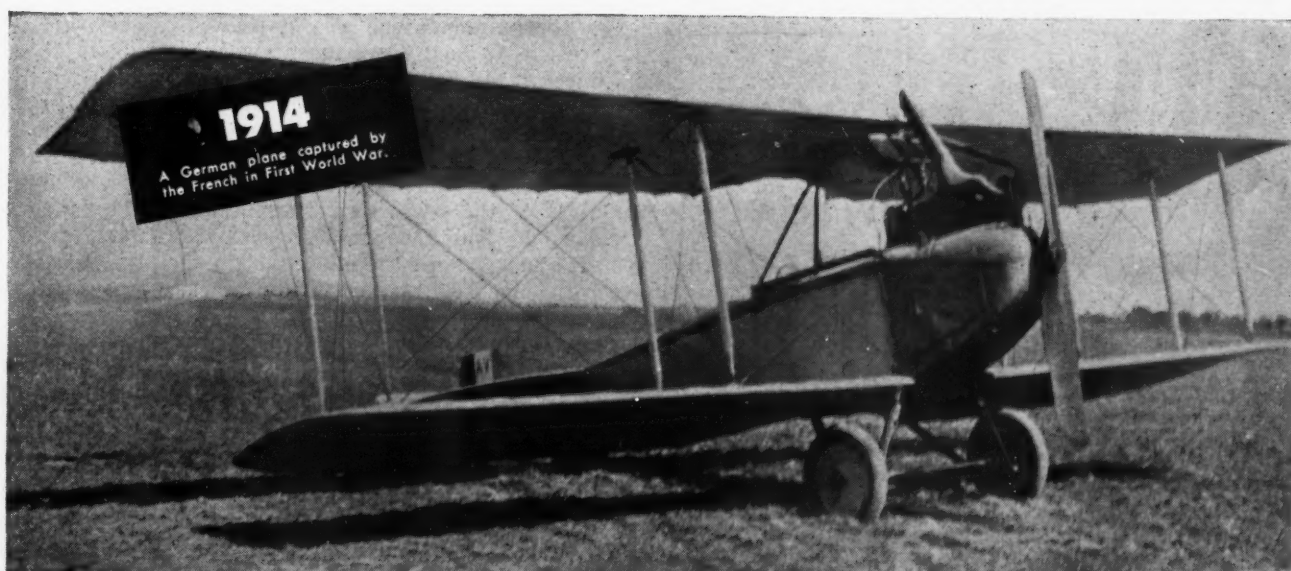
WHITE MANUFACTURING CO.
2368 University Ave., St. Paul, Minn.

Mobilization and Reconversion, temporarily, until November 7, headed by Justice Byrnes, was given by Congress the blanket authority to reconvert the Federal Government on a peacetime basis, INCLUDING THE REDUCTION OF FEDERAL PAYROLLS. The law says: "The Director shall determine the need for the simplification, consolidation, or elimination of such executive agencies as have been established for the purposes of the war emergency. The Director shall survey the present functions of the various executive agencies in the field of manpower and develop a program for reorganizing and consolidating such agencies to the fullest extent practicable." This clearly means the new agency shall consolidate the labor functions of Government into one over-all agency. This plainly intends that the President's Bureau of the Budget shall become a part of such agency. The curious feature is that a week or so before the law was validated by the President's signature, the President ordered the Director of the Budget Bureau, Harold Smith, to *prepare* for peace, liquidate war agencies, slash personnel, and simplify administration when the wars have reached the stages when the necessary actions are justifiable. It was made very clear that nothing is to happen until the Japanese have been defeated. The desirability of the action was stressed, but the actual act was made conditional.

The slant that has caused comment here is the fact that Smith was ordered to do by Executive Directive what the Law embraced before the Law was made effective. Smith was told to prepare to reconvert the Government from war to peace, to prepare to effect a general reorganization of the agencies and their functions, to plan to abolish war agencies, to transfer functions of temporary agencies to old-line agencies with expansion in personnel. Budget Director Smith promptly called on all agencies to prepare estimates for the shift on a war basis, on a basis of peace on all fronts, on a basis of peace in Europe and war in Asia, and a basis of war in Asia and peace in Europe. Smith also was under orders to prepare legislation to implement any necessary action by the agencies. All this is not merely assumed to be good campaign tactics, but it is generally supposed here it means Budget Director Smith will be appointed as head of the new OWMR after the election. This would tightly knit the new agency, a Congressional creation, into the agencies created by Executive Directive.

Women Want to "Sack" Men

There is much talk here about bringing the old-line agencies back from Chicago, St. Louis, Denver, Richmond, and other places to which they were sent when they were decentralized. But also it is apparent the States and localities where they were transferred will sharply oppose the recentralization. And there is the inevitable woman angle. Government now has millions of women employees. These new additions to the Federal payrolls not only do not wish to give up their jobs, but they wish to get rid of as many men as can be forced out. To this end they have organized the "Matriots" for the frank and deliberate purpose of doing everything possible to dispossess men whose jobs can be filled by women. And the amazing part of all this is that the Government people here take the undertaking very seriously. There are now 17,600 women holding postmistress commissions. Incidentally, the Services have let it be known the Wasps, Waves, Wacs and other uniformed women will soon be withdrawn from jobs that may be filled by civilians.



A lot can happen in 30 years

For 30 continuous years . . . through two world wars, through periods of depression and prosperity . . . people have seen the familiar Armco triangle trademark in national advertising. This advertising record—the longest in the steel industry—has fixed the Armco label in their minds as the mark of quality on gutters, downspouts, roofing, air-ducts and other sheet metal work.

THIS ADVERTISING HELPS YOU

This year Armco national advertising is appearing in *The Saturday Evening Post*, *Time*, *Newsweek*, the *Farm Journal* and *Successful Farm-*

ing. It is telling nearly nine million families that Armco *special purpose* metals will again insure durable, attractive sheet metal work—galvanized ARMCO Ingot Iron for long, low cost service; galvanized ARMCO PAINTGRIP for long paint life; and ARMCO Stainless Steels for beauty, easy care, and utmost corrosion-resistance.

When people again see the Armco triangle trademark on your work, they will know it as an old friend they haven't forgotten. They will use your services with confidence and you will gain good will and

profit for your shop. The American Rolling Mill Company, 2431 Curtis Street, Middletown, Ohio.

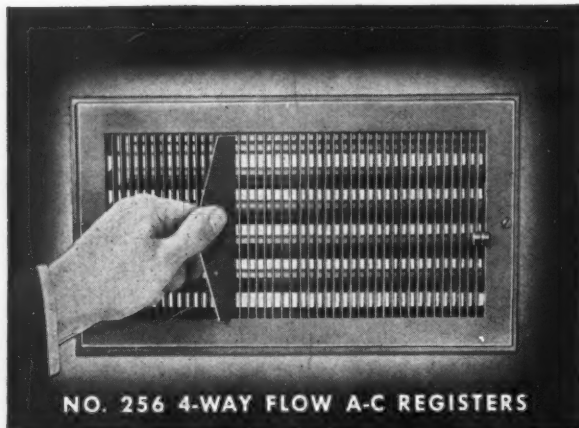
**HELP FINISH THE FIGHT—
WITH WAR BONDS**



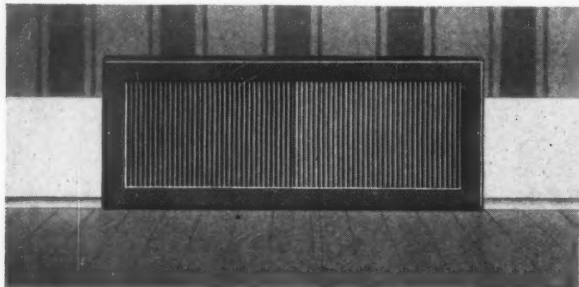


**PRACTICALLY
AND
TECHNICALLY
CORRECT**

**For the MODERN HOME
of TODAY and TOMORROW**



When you're thinking of new registers for the modernized house of today—or the trim, compact post-war homes to come—keep the U. S. 256 in mind. Completely accepted by the Best Trained Engineers as the most generally Practical and Efficient Type of Air-Conditioning Register for Low or High Side Wall Locations. The No. 256 Line gives you every directional flow desired. Bendable grille-bars adjust easily for left or right flows. Multiple rear-valves control up or down flows.



No. 176 U. S. A-C Baseboard Intake

Neat companion baseboard cold air return for the 256 line is the No. 176. Grille Bars and Spacing match the 256 Design and create an appearance of uniformity and a Tone of Harmony throughout the Home.

GET SET for the Big Push in Air Conditioning Installations as War Time Restrictions are Lifted.

Send for latest U. S. Catalogs

- 41AC—Air Conditioning Registers
- 41G —Gravity Registers
- 41F —Gravity and Air Conditioning Fittings

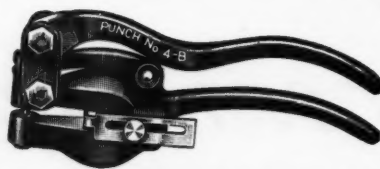
UNITED STATES REGISTER CO.
BATTLE CREEK, MICHIGAN
MINNEAPOLIS • KANSAS CITY • ALBANY

You taxpayers will also be pleased to hear that the present 48 hour Government work-week is to be reduced to 40 hours as fast as possible, which will obviously make possible the employment of more workers. The present custom of working on all holidays and on Saturday afternoons is to be abolished, which really is sensible. It has been a joke in Washington. Most of the brass hats surreptitiously take the holidays off and have errands somewhere on Saturday afternoons, while the others not in the brass hat class are compelled to report but do practically no work on these days or half days. It also seems likely the taxpayer will learn that white collar Government workers will get a raise in base pay, over-all, and that Government worker, over-all, will be entitled to the \$300 bonus which apparently was intended by law solely for certain Treasury workers who had not been sufficiently paid, according to Morgenthau, for collecting your taxes. The bonus is apt to run into rather amazing totals. We seem to have veterans on the home front as well as on the battle fronts. There is expected to be some argument over the per diem employee and the employee on an annual basis. The per diem guy, who came in on short appointments without the rigid examination applied to the annual basis worker, seems to have had the breaks in getting extra and overtime pay and other advantages.

Penn Electric Switch Co., Goshen, Indiana, has opened a branch sales office in Dallas, Texas, located in the Wilson Building. Penn manufactures automatic controls for heating, refrigeration, pump and air compressor service as well as safety controls for internal combustion engines.

The Dallas branch office will be managed by Ray P. Waite, a graduate mechanical engineer, who also has had considerable experience in electrical and chemical engineering.

WHITNEY LEVER PUNCHES



**NUMBER
FOUR "B"
PUNCH**

This punch for sheet metal work has a capacity of $\frac{1}{4}$ " through 16 gauge. Weight 3 lb. Length $8\frac{1}{2}$ ". Depth of throat 2". Complete tool includes three punches and three dies of specified sizes with die adjusting key. A time-saver for your up-to-date shop.



**NUMBER TWO
PUNCH**

And here's another handy tool for the modern shop—the No. 2 Punch. Length 23". Capacity $\frac{5}{16}$ " through $\frac{1}{4}$ " iron, weight 12 lbs., depth of throat 1-11/16". Punches and dies $\frac{3}{32}$ " to $\frac{1}{8}$ " by $\frac{1}{64}$ ".

W.A. WHITNEY MFG. CO.
636 RACE ST. ROCKFORD, ILL.



PLAN YOUR PLANT DRIVE NOW!

Good organization will be needed to sell the 6th. The task of raising the huge sum required will be the most difficult ever asked of Industry. As each new military success brings us closer to Victory, the public naturally will feel that the urgency of war financing is lessened—whereas it isn't. So organize now to prevent a letdown on the home-front from causing a letdown on the fighting front. Build your plant's payroll campaign around this fighting 8-Point Plan. You don't have to wait for the official Drive to start—swing into action NOW!

- 1 BOND COMMITTEE**—Appoint a 6th War Loan Bond Committee from labor, management and each representative group of the firm.
 - (b) *Pre-drive letter to employees from management and labor.*
 - (c) *Competitive progress boards.*
 - (d) *Meeting schedules, etc.*
- 2 TEAM CAPTAINS**—Select a team captain, for each 10 workers, from men and women on the payroll—but not in a supervisory capacity. Returned veterans make most effective captains.
- 3 QUOTA**—Set a quota for each department and each employee.
- 4 MEETING OF CAPTAINS**—Give a powerful presentation of the importance of the work assigned to them. Instruct them in sales procedure. Have them carefully study the Treasury Booklet, *Getting the Order*.
- 5 ASSIGNMENTS**—Assign responsibilities for:
 - (a) *Music, speeches and announcements of the opening rally.*
- 6 CARD FOR EACH WORKER**—Dignify each personal approach with a pledge, order, or authorization card made out in the name of each worker. Provide for a cash purchase or installment pledge. Instruct each captain to put a pencil notation on the card to indicate the subscription he expects to solicit from each worker.
- 7 RESOLICITATION**—People don't mind being asked to buy more than once. Resolicit each employee toward the end of the drive in a fast mop-up campaign. Call upon your State Payroll Chairman; he's ready with a fully detailed plan—NOW!
- 8 ADVERTISE THE DRIVE**—Use all possible space in the regular media you employ to tell the War Bond story.

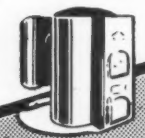
The Treasury Department acknowledges with appreciation the publication of this message by

AMERICAN ARTISAN

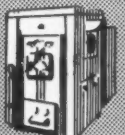
This is an official U. S. Treasury advertisement prepared under the auspices of Treasury Department and War Advertising Council



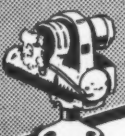
CAST IRON FURNACES



STEEL FURNACES



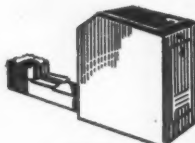
WINTER AIR CONDITIONERS



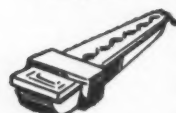
OIL BURNERS



BLOWERS



STOKERS



HUMIDIFIERS

Also:

COOLING
EQUIPMENT
REGISTERS
DUCTWORK
AUTOMATIC
CONTROLS

The KEY Heating
Dealers Choose
PREMIER as their
Post-War Line

In every community you will find one or more "key" dealers. They're not necessarily the largest dealers — but, they are the alert, progressive, live-wire dealers — the men who are working and planning today for a more prosperous tomorrow. They are the dealers whom every heating manufacturer would like to have.

Here at Premier we feel proud because so many of these "key" dealers are Premier dealers . . . we are proud that we had a part in their past success . . . and, we are proud that they are relying upon us to help them achieve still greater success in the future.

We are determined too, that when tomorrow dawns, we will keep faith with all of our dealers, by giving them a still finer, more complete PREMIER line . . . by giving them still more factory assistance with their engineering and merchandising problems.

Meantime, we appreciate the patience of our dealers during this period when our furnace production is limited and our main attention must be devoted to turning out the materials of war.

PREMIER FURNACE COMPANY
DOWAGIAC, MICHIGAN

PREMIER
The Year 'Round Line

On Our Industry's Front

(Continued from page 49)

Ferguson reported that from June 1934 to June 1944, the FHA had insured more than 4,600,000 repair and modernizing loans amounting to more than \$1,800,000,000.

First PR-25 Approvals

FIRST approval of civilian production under the recently issued "spot authorization" order includes manufacture of steel septic tanks, metal signs and Class "B" coal stokers for civilian consumption. None of these three authorizations involves any additional labor or new materials.

The Johnson Company, of Houston, Texas, has been authorized to make septic tanks. It will be permitted to use 120 tons of steel per quarter, which must come from idle and excess stocks. This amount of steel will be used to make about 900 units each quarter, under the authorization. The company will employ approximately 10 persons on this production. Houston is in a Group III War Manpower Commission labor area.

The Electrical Products Consolidated, of Spokane, Wash., a Group II WMC labor area, has been authorized to manufacture metal signs. This firm employs about 20 persons, who have been idle as a result of

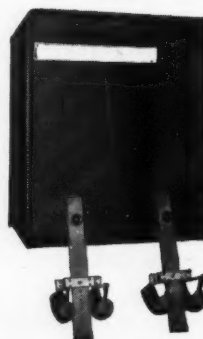
Simplex Automatic Draft Controls For Greatest Fuel Economy

NEW RUST PROOF

5 in 1

"SIM-TROL"

The SIM-TROL control with Simplex adjustable sleeve is adjustable to breechings (or smoke flues) from 8" to 12" inclusive, which covers the range of most domestic heating plants. Will save up to 25% in fuel; maintains draft at 1/100 of an inch of the desired point under all conditions.



Type "A" Industrial Control

References, as to efficient operation and economies effected by Simplex Controls on plants of various sizes up to 1,800 H.P. can be furnished. In many cases savings of over 25% have been made.

Most complete line of Barometric Controls for every size heating plant. Write for full descriptive circulars.

SIMPLEX
MANUFACTURING COMPANY
FOND DU LAC, WISCONSIN



For Outstanding Editorial Achievement

American Artisan Has Won this Award for its Service to You!

FIRST place in the annual Industrial Marketing competition among business papers for the outstanding research job for readers has been won by American Artisan.

The work which brought this award to Joseph D. Wilder, editor of American Artisan, was "Distribution Plan for 200,000 Replacement Furnaces in 1944" which appeared in these pages from August, 1943, to June, 1944.

American Artisan, serving your interests always



STOKER-FIRED ANTHRACITE WILL HAVE THE CALL

Intense interest in this book proves it, beyond a doubt. This frank discussion of automatic heat is being requested by thousands, in response to national advertising. These householders are sold on automatic heat. Reading of this book will point-up anthracite as the ideal fuel for them—and Motorstokor as the logical equipment in which to burn it.

The larger sizes of



are now available for properties using 25 tons of coal or more. Manufacture of the *full* line will be resumed as soon as permitted.

Address Department A for booklet, full information about Motorstokor, and available dealer franchises

**MOTORSTOKOR DIVISION
HERSHEY MACHINE & FOUNDRY CO.
Manheim, Pa.**

restrictions on the production of signs. Formerly, the plant manufactured neon signs.

Heating Assurance, Inc., also of Spokane, has been authorized to manufacture the Class "B" stokers. The company is permitted under the authorization to make 50 stokers during the fourth quarter of 1944 and 125 stokers during each of the first and second quarters of 1945. It employs about 15 persons, who have been making small parts for agricultural equipment under subcontracts.

Amendments, Interpretations

(Continued from page 47)

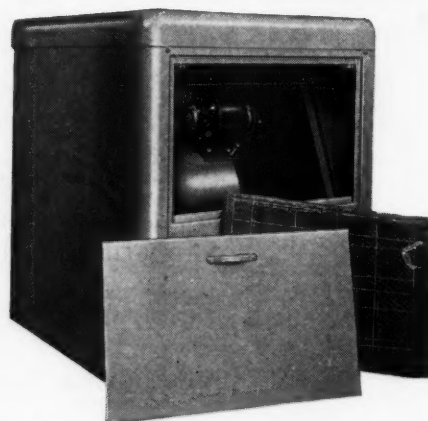
fabricating of materials or products. "Service machinery or equipment" is defined as equipment used in a building by means of which a particular service is rendered in the building.

The direction also permits the installation of building service equipment, such as plumbing, heating, lighting, air-conditioning equipment, elevators or escalators, regardless of the total cost of the job, if the equipment has been authorized or rated on a WPB special application form.

Materials required for the installation or necessary alterations may be obtained under Direction 15 to Controlled Materials Plan Regulation No. 5, which was recently amended to give, to persons not specified on Schedule A of that regulation, preference rating

First Choice

of those who demand the best in home heating comfort is a **BRUNDAGE BLOWER**. Easily installed ... automatically controlled.



Carefully engineered, one of these Blower Filter Units attached to a warm air heating plant reduces fuel costs while maintaining uniform heat in every room.

Note: Convenient access door, large filter area, firmly supported DUO-Multiblade wheel, Self-aligning bronze bearings, variable speed motor pulley, self-compensating motor mounting.



BLOWER SPECIALISTS
510 NORTH PARK STREET
KALAMAZOO 11, MICHIGAN

SHEET-METAL WORKING

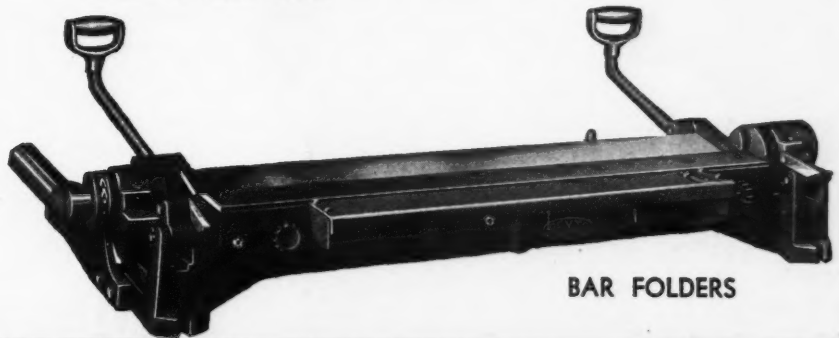
MACHINES and TOOLS by



SCROLL SHEARS

... will prove an important factor in the rehabilitation of war torn countries, with capacity to spare for domestic needs.

The complete line lends itself favorably to the production of practically everything ... when made of sheet metal.



BAR FOLDERS

THE PECK, STOW & WILCOX COMPANY Since 1785 SOUTHINGTON, CONNECTICUT, U. S. A.

No Other Bearing In Air Conditioning

has all these

QUALITY FEATURES

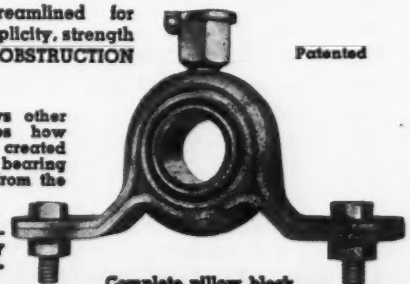
In designing your after-the-war fans, blowers, and other devices requiring silent operation, perfect alignment and self-lubrication—include the Triangle Shock-Absorbing Pillow Block.

1. It is the only bearing for air conditioning that has a resilient oil-proof cushion scientifically built into the bearing—for silence and vibration absorption.
2. Ball-and-socket design for perfect alignment.
3. Scientifically streamlined for compactness, simplicity, strength and MINIMUM OBSTRUCTION TO AIR FLOW.

Cut-away view shows other features and illustrates how unique engineering has created a new type of silent bearing outstandingly different from the conventional.

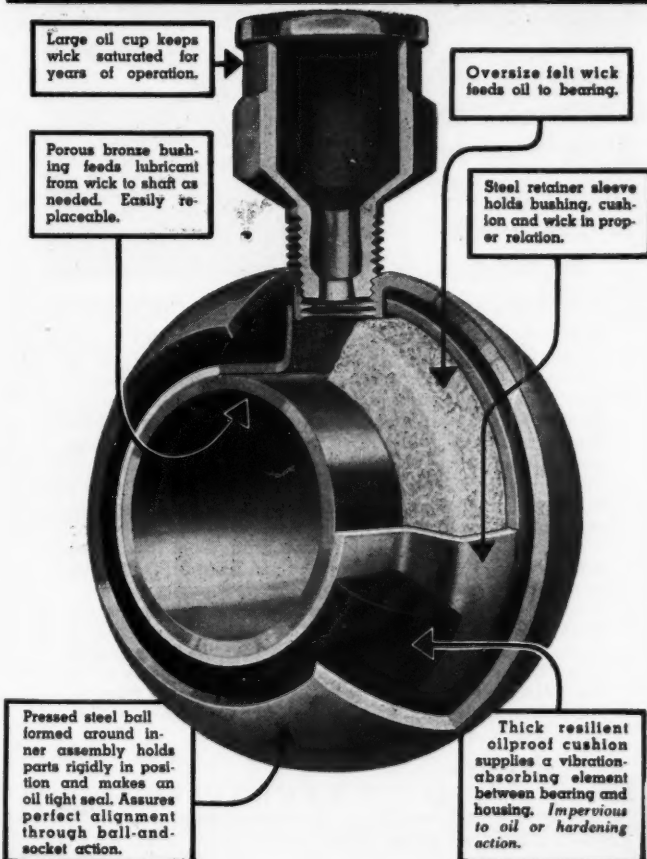
Triangle design assures high efficiency and low cost operation.

Write for quotations.



Complete pillow block One of several types of mountings

Patented



TRIANGLE MANUFACTURING CO.
392 DIVISION STREET OSHKOSH, WISCONSIN

FRONT RANK



**FRONT RANK
Furnaces Have
the Features!
Look for more
in future ads.**



THE connection between the drum of a steel furnace and the front of same is usually made with cement or asbestos gaskets. This is at best only a temporary joint, and must be repacked after a few years to make the connection dust and smoke tight.

On the FRONT RANK Furnace we use a 10-gauge all-steel front, permanently welded directly to the feed and ashpit pouches. This front is in two pieces to allow for expansion, and is so constructed that it is always gas and dust tight.

The smooth steel plates, of course, present a more pleasing appearance than even the most carefully molded castings, hence the eye appeal of our product is considerably enhanced. The bright red and silver colored name plate which gives the furnace number and BTU rating is also distinctly ornamental.

The front is so designed that by bolting on a top plate the square front may be used with a cylindrical casting.

DEALERS—FRONT RANK has the **FEATURES** that mean Sales and Profits for **YOU**. And it has the facilities to capably serve you **NOW**. Order from your Jobber.

FRONT RANK FURNACE CO.
DIVISION OF LIBERTY FOUNDRY CO.
2500 OHIO AVE., ST. LOUIS 4, MO.

and allotment symbols for the limited acquisition of such materials.

The exception granted in paragraph (d) (7) of Order L-41 for the installation of heating and combustion equipment has been amended to make it clear that such equipment may be installed if the installation results in a saving of the same kind of fuel as formerly used, not including a changeover to a different kind of fuel. The cost limit restrictions of \$5,000 for installation and \$25,000 total cost of the job including cost of the equipment still apply, WPB pointed out. This means that dampers, thermostats, regulators or stokers may be installed within the prescribed dollar limits as such accessories will conserve the same kind of fuel as formerly used.

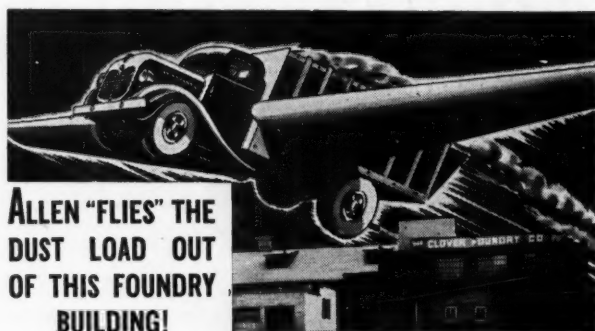
A new exception has been added to paragraph (d) (7) permitting the installation of conversion units designed for burning gas in a furnace or boiler formerly burning coal, where the use of gas for such purpose is not restricted by any order of WPB's Office of War Utilities.

The exceptions from Order L-41 given by these amendments do not eliminate the restrictions of other WPB orders, which may require special authorization to buy or install other kinds of equipment, WPB officials emphasized.

Metal Furniture

METAL furniture and fixtures that are permitted to be made for industrial purposes under Limitation Order L-13-a may be sold without specific authorization from the War Production Board.

The permitted types are steel seating equipment



... a Typical Assignment for Allen Engineers

When this vast building of the Clover Foundry Company at Muskegon, Michigan was originally built it was provided generously with roof ventilators. Subsequent operation and war time urgency for pushing up production of cast iron piston rings proved the existing ventilation inadequate to maintain a working atmosphere conducive to high operating efficiency. The Clover management turned to Allen and Allen made a true psychrometric survey. Much of the former equipment came off the roof and up went six Allen Type "H" Roof Fans—four 60A units over the shake out area; one 48A unit over the sand handling equipment; and one 48A unit over the cupola floor. Result: Atmospheric dust count was reduced to a point well within the limits necessary for the maintenance of an hygienic atmosphere. Allen men have the right attitude toward ventilating problems. They look with complete realism on the problem and are free to recommend the right course. *The Allen Corporation, 9751 Erwin Avenue, Detroit 13, Michigan.*

THE **Allen** CORPORATION
ENGINEERED VENTILATION FOR INDUSTRY

Note to Buyers Looking for Good Heating



You can buy Reznor Unit Heaters without certificates of any kind. The only restriction is on the use of gas, and the rulings differ in different sections. Check with your gas company.

REZNOR HAS A HEATER FOR ANY SIZE SPACE

Reznor Unit Heaters are available in nine sizes. Your choice will depend upon the size of area to be heated. Automatic Reznor Unit Heaters serve either as auxiliary or primary heat in such installations as factories, offices, stores, garages, homes, churches, bowling alleys, restaurants, and many, many other places.

The sooner you place your orders, the quicker you will get your heaters. Materials are coming through in limited quantities, and your deliveries will be made just as soon as possible.



WIRE!



PHONE!



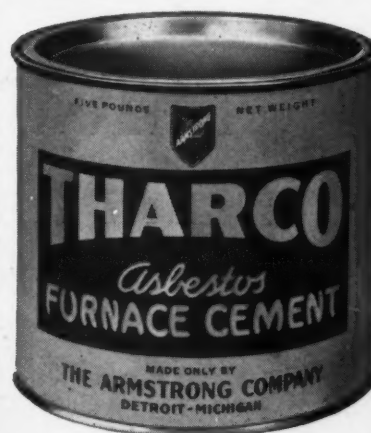
WRITE!

REZNOR
MANUFACTURING CO.

REZNOR

602 JAMES STREET
MERCER, PENNA.

"GAS HEATERS EXCLUSIVELY SINCE 1888"



Made to Meet Your Requirements

THARCO Asbestos Furnace Cement is your furnace cement, scientifically compounded by the exclusive Armstrong formula from the best materials obtainable, to meet your requirements.

Leading furnace manufacturers use and recommend Tharco Asbestos Furnace Cement and skilled furnace men everywhere will tell you that Tharco provides the easiest workability, the highest degree of adhesion and heat resistance.

Tharco field research never stops studying your installation and repair problems and every container of Tharco Asbestos Furnace Cement is guaranteed to meet the toughest conditions of furnace operation without shrinkage, checking or powdering. Tharco lasts longer, gives more satisfactory results always.

Order Tharco Asbestos Furnace Cement from your jobber. Packed in handy, on-the-job size containers. Insist upon Tharco always!

Write for your free copy of the valuable folder: "The Proper Use and Care of Furnace Cement."



THE
ARMSTRONG
COMPANY



4065 So. LaSalle St.
Chicago

241 So. Post Ave.
Detroit

319 So. Crowder St.
Dallas



Photo, courtesy Schramm, Inc.

UNISHEAR

Long experience isn't needed to operate a Stanley No. A-10 Unishear. It shears through sheet metal as heavy as 10 gauge at a rate of 10 feet a minute without burrs or distortion. Straight lines, curves, angles and notches are produced exactly to pattern.

Unishears are made in both stationary and portable models. Capacities 18, 16, 14, 12 and 10 gauge hot rolled steel or other materials in proportion. Stanley Electric Tool Division, The Stanley Works, 131 Elm St., New Britain, Connecticut.



STANLEY UNISHEARS
THE ELECTRICALLY DRIVEN HAND SHEARS

designed for use at a workbench or production machine, steel work benches that are required for safety, steel foremen's desks, shop boxes, stacking boxes, tool cases and tool room shelving inserts.

L-13-a, as amended Sept. 11, also permits manufacturers to fill orders for not more than \$25 worth of any type of metal furniture and fixtures without specific WPB authorization.

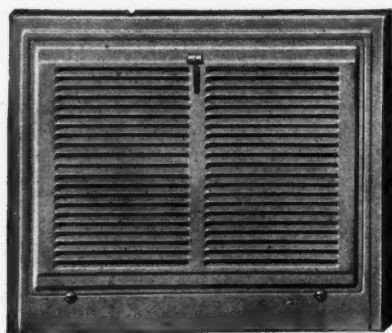
L-13-a now states specifically that products covered by the order are subject to the "spot authorization" procedure established in Priorities Regulation 25. Production will be authorized under PR 25 only where labor, facilities and material not needed for war production are available.

The procedure for filing applications on Form WPB-1319 for authorization to transfer metal furniture and fixtures has been revised. Except in certain cases, the form is to be filed by the ultimate consumer with the nearest WPB field office.

If the application is approved, the consumer may use either of two forms of certification. He may endorse his purchase order in the standard form prescribed in Priorities Regulation 7 and add the case number assigned to his WPB-1319 application, or he may certify as follows:

"The War Production Board has authorized me to accept delivery on this order under the terms of Order L-13-a, with which I am familiar. Delivery approved on Form WPB-1319, Case No." (followed by the consumer's signature).

Previously either the seller or the purchaser could file application, and both received copies of the approved application. The revised procedure will save paper and paperwork.



Heat-Rite Baseboard Register

AUER HEAT-RITE

Latest design baseboard model which gives you ultra modern appearance and greater open area in a warm air register. This streamlined gravity register has slightly downward directional fins (adjustable for other levels if desired) and is made in 2-piece model, also in wall registers and baseboard intakes.

Auer offers dealers and contractors a complete line of registers and intakes for gravity and for air conditioning, and metal grilles for all purposes. Auer Registers are stocked by leading jobbers.

AUER REGISTER BOOK



SENT ON REQUEST

THE AUER REGISTER COMPANY, Cleveland, O.

AUER REGISTERS
& GRILLES for Air Conditioning and Gravity



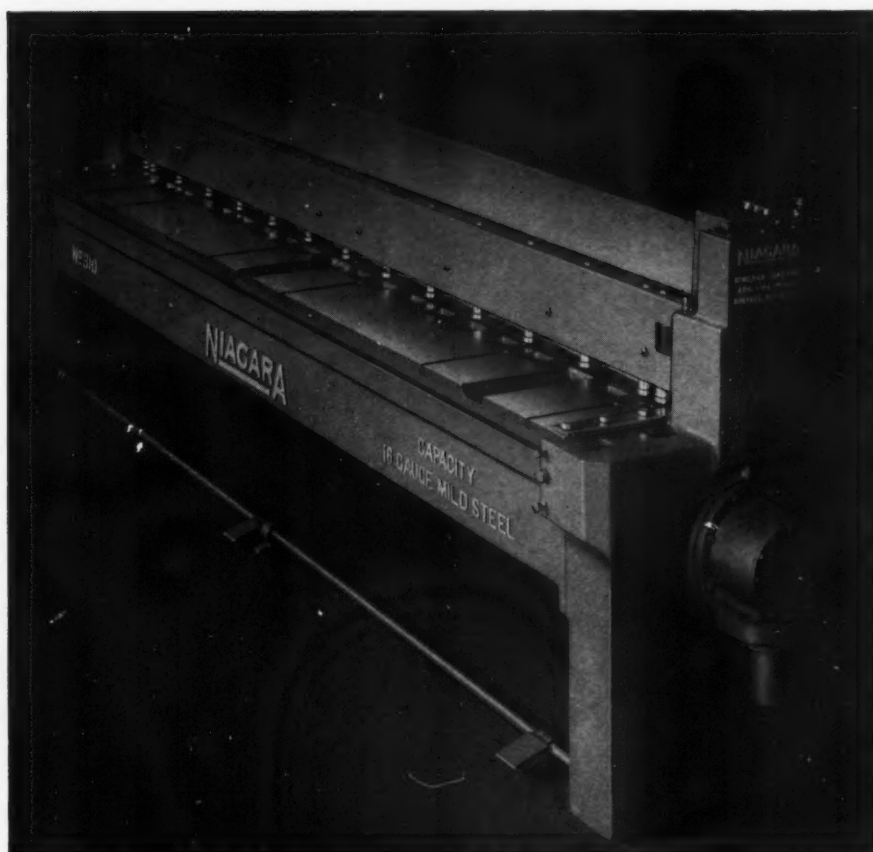
Wherever sheet metal is being sheared or formed, Niagara Power Squaring Shears and other machines are giving more production per hour.

In addition to speeding up production, they are also helping to keep wheels turning and planes flying by doing the many jobs essential to maintenance and repair.

The Series No. 3 Shear illustrated at right is just one of the many modern Niagara machines which are doing important work quicker and better.

...

Niagara Machine & Tool Works, Buffalo, N. Y. District Offices: Detroit, Cleveland, New York.



BUY UNITED STATES WAR BONDS

CHAR-GALE "Pre-Fabricated" DUCTS AND FITTINGS



PRE-FABRICATED DUCTS

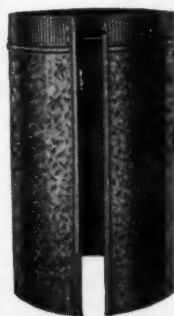
Already engineered to save you time and trouble. The Char-Gale "Quick-Method" Chart gives accurate sizes for any job, and figures costs for you.

Char-Gale was a pioneer in the design and manufacture of pre-fabricated ducts and fittings for forced air and gravity heating and distribution systems. Although heavily engaged in War Work, we have never gone out of production on Char-Gale heating products.

You can make extra profits with CHAR-GALE "Pre-Fabricated" DUCTS and FITTINGS, which will handle your jobs practically 100% complete. Made by standardized mass production methods—all sizes are accurate—no delays on the job. **PROMPT DELIVERIES**—Try us out on your next job.

SMOKE PIPE

After years of field experience, we find that the trade generally agrees that the double offset lock, which we call the Char-Gale lock, seems to be the most satisfactory.



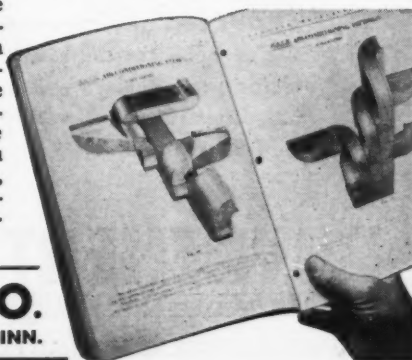
ELBOWS

Char-Gale Elbows have earned an enviable reputation with the trade—easy to adjust, segments are extra large and cannot come apart.



Send for CHAR-GALE CATALOG No. 40

We offer one of the most complete heating supply lines in the industry, including furnace smoke pipe and elbows, stove pipe and elbows, warm and cold air pipe, registers and register boxes, air filters, etc.



CHAR-GALE MANUFACTURING CO.
3125 HIAWATHA AVE., MINNEAPOLIS 6, MINN.

Premier FURNACE CLEANER

BUILDS UP SERVICE VOLUME!

The sturdy Premier Furnace and Boiler Cleaner works as your best ally in developing service business in volume—it gives you first-hand knowledge of needed repairs while it brings you profits on cleaning jobs! It's rugged and powerful, yet compact and light weight—easily carried and operated by one man. Write today for complete information.

NEW IMPROVED MODELS Completely Equipped

NEW IMPROVED MODELS
 3/4 H.P. . . \$74.50
 1 H.P. . . \$89.50

ELECTRIC VACUUM CLEANER CO., INC.
 1730 Ivanhoe Rd. • Cleveland, O.

Application for Higher Prices

SEVERAL items of consumer goods have been added to the list on which manufacturers may apply for adjustment in their maximum price, provided the increase will be absorbed at a subsequent level of production or distribution and will not increase the established retail selling price, the Office of Price Administration announced September 14.

The commodities are added to Order No. A-3 under the general consumer durable goods regulation which sets forth provisions for granting manufacturers' price adjustments. Among items are: Galvanized ware; Coin-operated vending and amusement machines; Lockers; Shelving; Blow torches.

(Amendment No. 4 to Order No. A-3 under Maximum Price Regulation No. 188—Manufacturers' Maximum Prices for Specified Building Materials and Consumers Goods Other than Apparel, effective September 14, 1944.)

Proposed Michigan

Heating Code

(Continued from page 68)

lapse of a twelve month period from the date of said revocation.

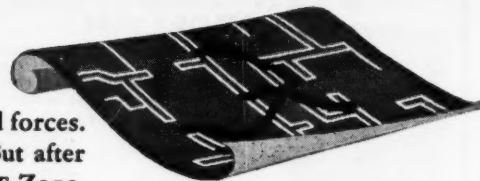
Section 9. LOCAL SUPERVISION

Before January 1, 1946, the legislative body of each city, or village within the State of Michigan having a population of 25,000 or over, according to the last Federal census, and of each township or portion thereof adjacent



**TODAY
WAR WEAPONS**

**TOMORROW
Payne
ZONE-CONDITIONING**



There's only one important job now . . . backing up the armed forces. We've been concentrating on it for more than two years. But after victory, our dealers will have a new "sales weapon": PAYNE Zone-Conditioning, post-war successor to old-fashioned central heating. ★ Meanwhile, let's all buy more, and more, War Bonds.

PAYNEHEAT
 30 YEARS OF LEADERSHIP
 Payne FURNACE & SUPPLY CO., INC., BEVERLY HILLS, CALIF.



REQUEST NEW ZONE-CONDITIONING FOLDER
 . . . just published for the information of families who plan to build or remodel. Write for sample copy.

© 1944 PAYNE FURNACE & SUPPLY CO., INC.

to the limits of any city having a population of 25,000 or more, according to the last Federal census, shall, and the legislative body of any city, village or township having a population of less than 25,000, according to the last Federal census, may; by charter, ordinance and/or by action of its duly authorized authorities, prescribe rules and regulations for the purpose of safeguarding the health, lives and property of persons, provided they are not less than the minimum standards prescribed by the administrative board for installations or the repair, alteration or extension of existing warm air heating and/or air conditioning systems or the addition or attachment of any apparatus thereto on all work within the scope of this act, provided, further, however, that no jurisdiction shall be granted or assumed by any township under this act over any part of a city or village having a population of 25,000 or over, according to the last Federal census, and all such cities, villages, or townships shall make suitable provision for and enforce such rules and the duly authorized authorities thereof shall establish a schedule of permit fees to defray the cost of such enforcement. All persons employed as inspectors in such enforcement service must hold inspectors' certificates of qualification as provided in section 12.

Section 10. PERMITS

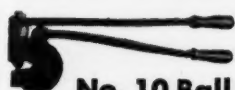
No installation of warm air heating and/or air conditioning equipment as defined in Section 1 shall be undertaken in or in connection with any public or private building nor shall any alteration or addition be made in any such existing equipment, or any equipment or apparatus be attached thereto in any city, village or township within the scope of this act, without paying the permit fee and securing a permit from the proper authorities; provided, however, that no permit shall be required to make minor repairs as classified and published by the board; and further that in the case of emergency repairs, the application must be filed within three days after making such repairs. Application for such permits describing the work to be

WHITNEY-JENSEN PRODUCTS

30 YEARS EXPERIENCE

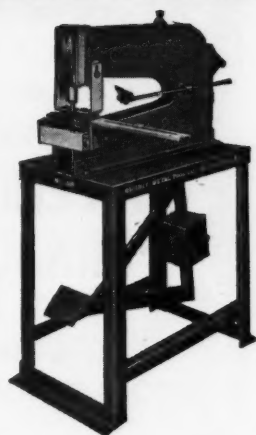
TOGGLE ACTION FOOT PRESSES

A powerful linkage MULTIPLIES foot pressure to provide fast, EASY action. Made in 4 sizes—7", 10", 18", 24" throat depth. Capacity 2" hole in 16 ga. iron.



No. 10 Ball Bearing PUNCH

Screw press action, with ball bearings in the race, gives great punching power in a light-weight tool. Capacity $\frac{3}{8}$ " hole in $\frac{1}{4}$ " iron, weight only 8½ lbs.



No. 17 BENCH PUNCH

Easy to operate, with smooth roller bearing action. Very practical where work is of a varying nature. Capacity $\frac{1}{4}$ " hole in $\frac{1}{4}$ " iron. Depth and side gauges furnished, 6"x8" work table available.

WHITNEY METAL TOOL COMPANY
91 PORSES ST. • ROCKFORD, ILL.

There is STILL TIME !

SELL **Sampsel**
COAL SAVING
CONTROLS



No. 8870 Coal Saving Unit

Damper Motor with built-in Transformer; S-22 three wire, low voltage Standard thermostat; 33 ft. of color code conductor; chains, pulleys, staples, screws and hooks. Application: hand-fired coal burning equipment for warm air, steam, or hot water.



No. 8873 Coal Saving Unit

Same as No. 8870 plus Warm Air Limit Control. All accessories included. Principal application is hand-fired coal-burning furnaces. Dealers should urge prospects to spend the small additional amount for the added safety of a Sampsel Limit Control.

...and You
SELL FUEL
CONSERVATION

Fuel Saving
Starts With
CONTROL

LITERALLY MILLIONS OF PROSPECTS

Nearly every hand-fired furnace or boiler owner is a prospect for Sampsel Coal Saving Controls. Cash in on the tremendous national O.W.I.-sponsored COAL CONSERVATION program. Push Sampsel Coal Saving Controls. Packaged Units for your convenience. Powerful sales helps.

SAMPEL TIME CONTROL, INC., SPRING VALLEY, ILL.



Completely PRECISION-BUILT by Sampsel
Sampsel Controls are precision built in their entirety by Sampsel. From design and engineering right on through to the dependable finished

unit, Sampsel skill and knowledge demand highest quality materials and workmanship. Each Sampsel Control is thoroughly tested before it leaves the Sampsel factory.

That's why you can depend on Sampsel Controls. That's why the Sampsel guarantee has meaning. That's why we say—WE MAKE WHAT WE SELL—WE KNOW WHAT WE MAKE!

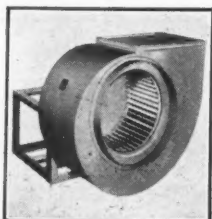
IMMEDIATE DELIVERY

Rush your orders now while stocks are good. There is a limit. Don't be left out of this profitable war time market. Help the war effort—and help yourself!

Sampsel
AUTOMATIC CONTROLS

YOUR BLOWER Requirements

AVAILABLE AT
Schwitzer-Cummins Company



★ BLOWERS FOR EVERY PURPOSE

Double Inlet and Single Inlet

HY-DUTY Blowers, 9 3/4" to 25" • Top and Bottom Horizontal, and Top and Bottom Vertical Discharge • Top and Bottom

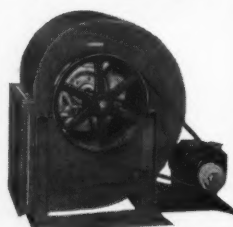
Motor Mounting • Dual Units also available.

★ **CENTER DISC WHEEL**—Double Inlet, Double Width • Reinforced Center Disc • Designed for Modern Air Conditioning and Heating Applications • Sizes, 4 1/2" to 50".



★ **ENGINEERING DATA**—Write for Catalogues showing complete Performance Data • Experienced Engineering Department available to help solve your Air Handling Problems.

BLOWER DIVISION
SCHWITZER-CUMMINS COMPANY
1145 EAST 22ND STREET INDIANAPOLIS, U. S. A.



done shall be made in writing, in such form as may be prescribed by the said proper authorities, by the person or firm contracting to do the work and shall be accompanied by the required fee. When the applicant has satisfactorily complied with these requirements, a permit for such installation shall be issued provided that the said person or firm shall not have pending a non-compliance notice which had been mailed or served not less than 10 days previously, and further provided that the issuance of such permit shall not be taken as permission to violate any legal requirement and no deviation shall be made from the work described in the permit, except in the case of repairs to existing equipment, without written approval of the proper authority having jurisdiction.

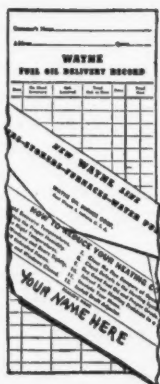
Section 11. INSPECTOR'S CERTIFICATE OF QUALIFICATIONS

No person shall be employed by any municipality of the State of Michigan as an inspector without first having secured from the board an inspector's certificate of qualification. The requirements for obtaining inspector's certificate of qualification shall be as follows: The applicant shall be a licensed journeyman mechanic of good moral character, shall be possessed of such executive ability as is requisite for the performance of his duties, shall have a thorough knowledge of the required standards of both materials and the method used in the installation of warm air heating and air conditioning equipment, shall have had at least five years experience in the installation of warm air heating and/or air conditioning systems, or, in lieu of such five years practical experience, shall be a graduate of some recognized engineering college with at least two years practical experience and shall pass a written examination given by the board. Before an air conditioning inspector's certificate of qualification is issued to any applicant he shall pay to the board a fee of five (\$5.00) dollars. Each inspector's certificate of qualification shall continue in force until suspended or revoked by the board. Any inspector's certificate of qualification may be sus-

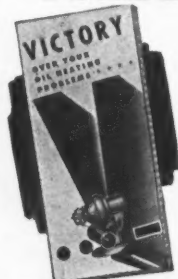
New! Convenient! HEATING RECORD CONTAINER

For Your Customers

FREE
TO ALL OIL BURNER
and FUEL OIL DEALERS



As illustrated—especially designed as a container for fuel oil ration coupons. Front has place for customer's name and ruled form for keeping a complete record of fuel oil purchases. Reverse side lists 12 points on how to save fuel and has place for dealer imprint.



A gift your customers will appreciate—and its FREE—to help you build post-war business and to get profitable service and accessory sales now. ORDER TODAY. State number desired using your business letterhead.

WAYNE VICTORY HEATING MANUALS
They're FREE to all Oil Burner and Fuel Oil Dealers. Order your supply of these manuals now. State number needed using your business letterhead.

WAYNE OIL BURNER CO., 9110 GLASGOW AVENUE
FT. WAYNE 4, INDIANA

WAYNE'S V-DAY LINE WILL BE COMPLETE

Dealers!

Stock the furnace that solves
most customers' heating problems!

Palmer
UNIT HEAT
SUSPENDED
FURNACE
FOR
FACTORIES
STORES, HOMES!



Perfect performance, attractive appearance, complete quietness are the selling features of this precision-made suspended furnace. Highest quality materials throughout!

Write for
prices

Palmer
Manufacturing Corp.
Phoenix, Arizona

pended for a definite length of time or revoked by the board after a hearing if the holder of such certificate fails to properly perform his duties as an inspector in conformity with the rules and regulations of the board.

Section 12. AUTHORITY OF INSPECTORS AND INVESTIGATORS

Any board investigator and all inspectors having jurisdiction shall have the right during reasonable hours to enter any public or private building in the discharge of his official duties or for making any inspection or test of installations or repairs as defined in Section 1 and is hereby authorized to order the discontinuance of the use of faulty or hazardous equipment; and if the same is not repaired within a reasonable time, the inspector shall have the right to seal the heating unit or any part of said equipment which will render the same inoperative; provided, however, that whenever any city, village or township by charter, ordinance, and/or by action of its authorized authorities shall establish an inspection service as provided in Section 10. Said inspection shall conform to the rules and regulations established by the board and in the event said inspection is not in conformity with the board's rules and regulations and after a proper notice and hearing, the board may revoke the license of any inspector.

Section 13. INSPECTION AND APPROVAL

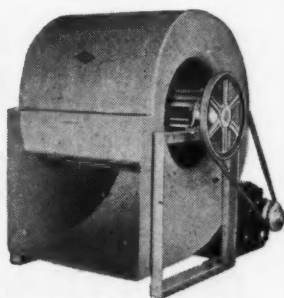
Whenever a warm air heating or air conditioning installation, repair or alteration, authorized by the issuance of a permit, has been completed, it shall be the duty of the person or firm installing the same to notify the inspector having jurisdiction who shall inspect the work within a reasonable time. If the work conforms to the requirements established under this act, the authorized authorities having jurisdiction shall issue an approval. If the work is found not to conform to the requirements established under this act, the inspector shall send to the person or firm making the installation a written notice stat-

Meet Today's

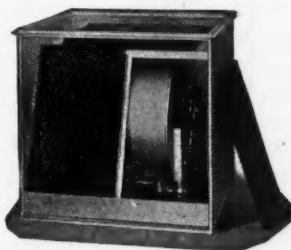
Requirements with

Properaire BLOWERS

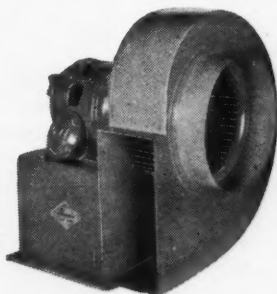
Available now for prompt delivery, and easily adapted to your installation problems, you'll have excellent success with this well-rounded line of blowers.



"B" ASSEMBLY Belt Drive



SERIES 2000
Insulated Package Units



TYPE E
Direct Drive

Ask your jobber or write for "Blower File." Free.

GRAND RAPIDS DIE & TOOL CO.
1202 Godfrey Ave., S. W., Grand Rapids 2, Mich.

Be "**Johnny on the Spot**"
to handle important factory
reconversion jobs with modern

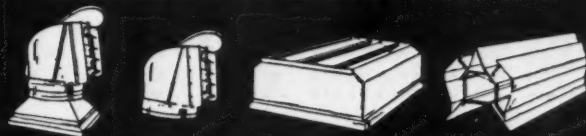


SWARTWOUT Roof Ventilators

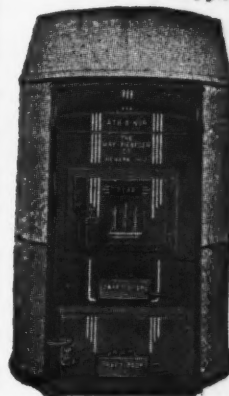
... the line that is
well advertised, and
includes the startling
new **AIRMOVER**—
installed & proved in
important war plants

Write for the facts The Swartwout Company
18511 Euclid Avenue . . . Cleveland 12, Ohio

Swartwout VENTILATION
SPECIALISTS



ATH-A-NOR Furnace Repair Parts



The furnace choice of dealers who know performance and saleability has been Ath-A-Nor for more than 50 years. Quality, economy and efficiency have always distinguished the Ath-A-Nor line. Replace with Ath-A-Nor to insure maximum performance and fuel economy! And continue to pile up scrap for munitions and see that it reaches government agencies speedily!

MAY-FIEBEGER COMPANY
MANUFACTURERS OF QUALITY HEATING EQUIPMENT FOR
OVER 50 YEARS
NEWARK, OHIO



WILL WILLIE WILLIAM BILL

4 Little "Fitting" Guys Fighting For You!

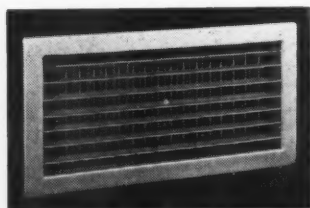
Will cuts installation costs—Willie makes fittings fit—William keeps prices down to bed rock—and Bill sees that there is stock near you.

FLASH NEWS! Complete, simplified line Gravity Pipe and Fittings now available on rated orders—24 hour service and shipments.

FREE. Complete, easily understood gravity pipe and fittings catalog showing full simplified line. Write Dept. 2 for prices and catalog.

THE WILLIAMSON HEATER COMPANY
CINCINNATI 2, OHIO

WILLIAMSON WARM AIR FURNACES



4-WAY **AIR DIRECTION** *with 1 grille!*

• You can control air flow in all four directions with this Waterloo FG-75 Grille. All front and rear streamline blades are individually adjustable in either direction, to complete close. A removable wrench provides adjustment after installation—permitting changes, to overcome or correct unforeseen conditions of air distribution. Now, and postwar, you're ahead of the parade with Waterloo grilles of the future.



REGISTER CO.
Established 1902
Waterloo, Iowa Seattle, Wash.
Representatives in Principal Cities

ing the defects which have been found to exist. Upon failure of any person or firm to repair the work in conformity with the requirements established under the provisions of the act within 10 days of the issuing of said notice, the authorized authorities shall refuse further permits to said party and shall immediately notify the board.

Section 14. CONTINUANCE OF MUNICIPAL LICENSING PROVISIONS

In every municipality of the state, where, at the time this act goes into effect, it is required by ordinance that persons, firms, or corporations engaged in the business of installing warm air heating and/or air conditioning equipment shall be licensed by municipality to so engage or where any form of license is by ordinance required in order to undertake or perform the installation of warm air heating and/or air conditioning equipment, every such license which has been issued prior to the date, upon which this act goes into effect shall continue in force until the date of its expiration according to the ordinance under which it was issued, except that no such license shall continue in force for a period of more than one year after the date upon which this act goes into effect, and thereafter no such license shall be required by the municipality.

Section 15. DISPOSITION OF FEES

Except as hereinafter provided, all funds received by the board in the form of fees or from any other source shall be paid into the general fund of the State and all necessary expenses are hereby appropriated from the general fund for the use of the board in carrying out the provisions of this act and shall be paid out by the State Treasurer upon vouchers approved by the chairman of the board to meet the payment of all expenses actually incurred. If the principal place of business of the person, firm or corporation making application for a contractor's license or the place of residence of a person making application for a journeyman's license is within the corporate

BOOST PRODUCTION SCHEDULES WITH

MARSHALLTOWN **THROATLESS SHEARS**

★
CUT ANY SHAPE

★
CUT ANY SIZE
SHEET

★

Here's just the Shear that offers every feature you want. It does hundreds of odd shearing jobs better and faster—yet is an inexpensive hand operated tool. No matter what type of cutting—either irregular shapes or straight splitting—from ANY size sheet, you'll quickly find that the Marshalltown Throatless Shear is the most profitable tool in the shop.



No. 18
HAND
POWER

Get Special Shear Bulletin today. Gives details of sizes from 18 gauge to one-half inch capacity.

MARSHALLTOWN MFG. COMPANY

920 E. Nevada St., Marshalltown, Iowa

limits of a city, village or township where inspection is established as herein provided, fifty (50%) per cent of the annual license fee of the application, provided a license is issued, shall be turned over to the Treasurer of that city, village or township to assist in defraying the expense of the inspection department and the remaining fifty (50%) per cent shall be paid into the general fund of the State of Michigan.

Section 16. RECORDS OF THE BOARD

The board shall keep a complete record of all meetings and all other transactions. The same must be kept on file for a period of at least three years and shall be open to public inspection on demand. The board shall keep a record of all licenses and certificates issued by it and shall have printed a manual of its rules and regulations for the conduct of examinations.

Section 17. PENALTIES

Any person, firm or corporation who shall violate any of the provisions of this act shall be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than twenty-five (\$25.00) dollars or more than one hundred (\$100.00) dollars or imprisonment in the county jail for not more than thirty (30) days or by both such fine and imprisonment at the discretion of the court. If such person, firm or corporation is the holder of a license of any class provided for in this act, such conviction shall have the effect of suspending said license until such time as it shall have been reinstated by the board. Each violation shall be considered a separate misdemeanor.

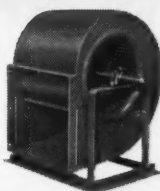
Section 18. LIABILITY FOR DAMAGE

This act shall not be construed to relieve or lessen the responsibility or liability of any party owning, operating or controlling installing any gravity warm air heating and/or air conditioning equipment for damages to persons

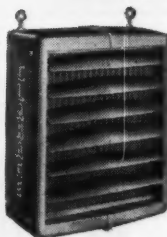
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This nationally known, nationally accepted fan equipment helps you land desirable jobs—helps you KEEP desirable customers. It will pay to figure with us on any air handling or conditioning project. **Write for Clarage catalog.**



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UNIT HEATERS



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SAVES TIME — SAVES MONEY

★ The Saw-Chief attaches to electric and air drills, or may be driven by flexible shaft. Hack-saw blade in holder reciprocates rapidly with a 7/8" stroke. Cuts all metals—every gauge, wood, plastics, other materials. Eliminates slow, tiresome hand-sawing operations. Reaches into hard-to-get-at places with ease. Insert ordinary machine file for power-filing operations. It's portable... carry it from job to job.

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The Saw-Chief can be shipped quickly, ready for attaching to your drill or flexible shaft at only \$45.00. May also be obtained complete with heavy duty drill at \$90.00, or with high-powered, light-weight drill at \$83.00.

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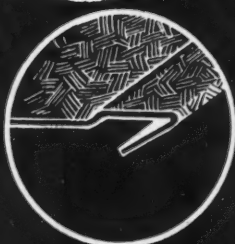
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662 West Roosevelt Road
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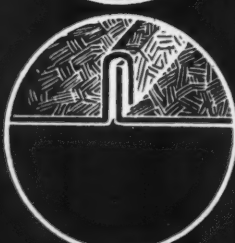
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Instantaneous, direct readings of air speed measured in feet per minute with the Alnor Velometer give you the quick, accurate information on air movement needed to check operation of blowers, fans, air conditioning installations, and similar equipment. No calculations, no timing, no conversion tables; read velocities direct from the Velometer scale. Extension jets permit accurate readings in many locations that would be completely inaccessible with other means of measurement.

The Velometer is made in several standard ranges from 20 fpm to 6,000 fpm, and up to 3 inches static or total pressure. Special ranges available as low as 10 fpm and up to 25,000 fpm velocity and 20 inches pressure.

Write for Bulletin No. 2448-E.

Illinois Testing Laboratories, Inc.

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or property caused by any defect therein, nor shall the state or any municipality be held as assuming any such liability by reason of the inspection or examination authorized herein or the certificate of approval issued therefor as herein provided.

Section 19. VALIDITY AND REPEAL

If any section, sub-section, sentence, clause or phrase of this act is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this act. The legislature of the state hereby declared that it would have passed this act and each section, sub-section, sentence, clause, or phrase thereof, irrespective of the fact that any one or more sections, sub-sections, sentences, clauses or phrases may be declared unconstitutional. All acts or parts of acts in conflict with the provisions of this act are hereby repealed.

"Miracle"

House Delusion

(Continued from page 55)

In other words, the survey clearly indicates that families in the broad, middle income group—the bulk of the post-war market—say they will postpone buying a home until the "magic house" can be purchased at the price they are willing and able to pay.

What Consumers Can Expect

Just what will the improved "Home of Tomorrow" be like in design, construction and interior equipment?

Frank W. Cortright, Executive Vice-President of



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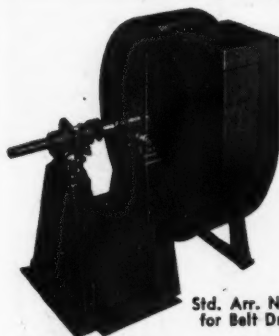
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Write us about your problems. Send for Bulletin No. EX-41

BAYLEY BLOWER COMPANY

1817 South 66th Street Milwaukee, Wis.

the National Association of Home Builders, speaking for the nation's leading builders, says:

"There will be gradual, progressive evolution in home building, but not drastic revolution. Greater emphasis will be placed on selection of site and designing the house to blend with the general surroundings to provide a maximum of spacious living.

"Conventional types of home will continue to dominate the American scene, with reasonable modifications, such as wider acceptance of the low, sweeping roof lines of the California and Florida styles.

"In construction and equipment, the builders will be able to deliver the best types of pre-war housing with considerable more window area, increased emphasis on size and charm of the living room at the expense of the dining room. Especially attractive kitchens and bathrooms and appealing basements will be outstanding features of post-war homes.

"Practical, labor-saving devices to reduce the burden of housekeeping will be built into these homes, depending upon the wishes of the consumer and his ability to pay for extra interior refinements."

Once the "Magic Home" bubble has been pricked, and the public correctly informed on what it can reasonably expect in greatly improved living conditions, the building industry and its allied interests, will be in the happy position of dealing with enlightened customers. They won't be confused and bewildered by conflicting illusory promises.

It won't be a case of "let's wait and see what happens," but prospective home owners can start planning now to build their practical "dream home," firm in the conviction that the finished product will be up-to-date in every way and the best that money can buy in any price range.

LINE CHIMNEYS for PROFIT!

ATTENTION CONTRACTORS:

Make a profitable business of installing Vitroliner Vent Pipe in old or new masonry chimneys for long life and PROTECTION. Ideal for gas or oil fired jobs where CONDENSATION is an important problem.

VITROLINER CHIMNEY LINER is heavy gauge, high quality enameling stock iron and is coated inside and out with special high temperature acid-resisting vitreous enamel. Bell and Spigot type joint assures a perfect and uniform fit.

Vitroliner Vent Pipe is easy to install in a few hours. Write for details to

**CONDENSATION
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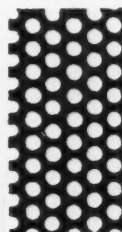
122 S. Michigan Ave.
Chicago 3, Illinois



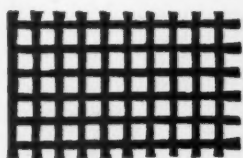
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Sullivan Draft Stabilizer

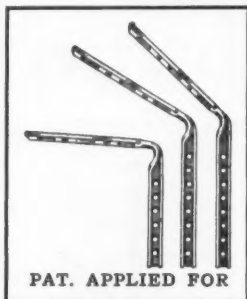
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Starts With
CONTROL*

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JOBBER EVERYWHERE

BERGER BROTHERS CO.

Main Office & Factory
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Ship Ventilation

(Continued from page 73)

twenty-eight gauge galvanized iron whenever a number of the same fittings are needed. In addition to the piece number, all other information concerning this fitting is placed on the metal pattern, such as system, deck and frame numbers, quantity required and gauge of material used. This identification number is placed on the finished fitting and it is then a simple matter for the expeditors to deliver it to the proper spot on the ship for installation. In turn, the sheet metal men can install it in the proper place in the system.

If a fitting has a number, such as system 4-72-2 and piece 3 GS-47, it would indicate fourth deck at or near frame 72 and the number 2 signifies port or starboard. Piece three indicates the third deck in the G section of the starboard side and is the forty-seventh piece in the system. After all the pieces in a system are laid out and numbered, the blue print department reprints the system, with these numbers in a sufficient quantity to furnish the fabricators and installers with the necessary copies they require for their work.

Shipyard Is Large Fabricator

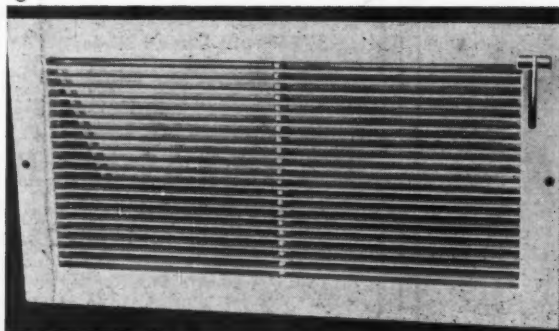
In addition to ventilation there are many other kinds of sheet metal work fabricated in the ship yard sheet metal shop. A typical ship yard shop required from 20,000 to 30,000 pounds of sheet metal per day and has about twelve hundred employees, both men and women, in their sheet metal department divided into three eight-hour shifts.

When we realize these ships are being built by help, many of whom have never seen a ship before, it is surprising to see how efficient both women and men can become doing this type work in such a short time.

Like a giant jigsaw puzzle this job of building ships is a masterpiece of coordination to get every piece in the proper place at the proper time. The ship of today, made almost entirely of steel, is a metal worker's dream.

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Quick
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309 Washington Street
Orange N. J.

I.C.I.

Open Forum

(Continued from page 84)

the American public on the home and on better heating; it will help attract to this industry needed salesmen, engineers and service men; it will help us all get our rightful share of the shelter dollar.

He admitted it is a big job to put over I.C.I. It must be sold to manufacturers, the trade and the public. He hoped the forum had answered many questions and eliminated much misunderstanding. He concluded that it was up to the industry to go forward with a big idea or to consign it to oblivion.

The next day was devoted to panel sessions conducted by the various committees through which I.C.I. will function.

The Public Information Committee, chairmanned by C. D. Lyford, met with editors of seven different publication groups to review the manner in which newspapers and magazines can cooperate with I.C.I. in the education of the public.

The Science Committee, Willis H. Carrier, chairman, discussed its plans for keeping the members of the related industries and the public posted on scientific facts affecting indoor climate.

The Local Chapters Committee, Jack Searls, chairman, analyzed the manner in which local I.C.I. chapters can be established to promote the idea of greater indoor comfort and health in every community.

The Speakers' Bureau Committee, John Knighton, chairman, presented its plans for supplying speakers, exhibits and information for local and national groups which should hear the I.C.I. story.

The Trade Associations' Committee, J. M. McClintock, chairman, discussed with trade association directors the way in which I.C.I. can supplement the promotional activities of the respective associations.

The Industry Promotion Committee, C. T. Burg, chairman, talked about how the I.C.I. program can be capitalized upon by members.

The Postwar Personnel and Training Committee, J. R. Scott, chairman, took on the job of assisting manufacturers and the government in training manpower to sell the public on the benefits of controlled indoor climate.

The Membership Committee, T. A. Crawford, chairman, discussed the method of acquiring active and associate memberships.

All the above committees have been appointed and are functioning. Their titles are an explanation of the activities which I.C.I. is undertaking. Through them the I.C.I. will operate to achieve its aims.

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To Help With Your War-Time
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SPOT WELD

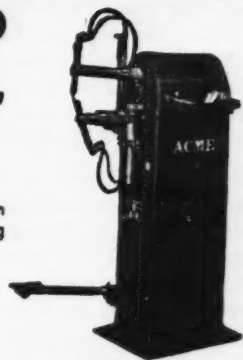
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KNOW AIR CONDITIONING



Send Today
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Samuel R. Lewis'
**"AIR
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Third Edition
288 Pages—Illustrated
\$2.00

Here is a book that presents—in simple, readily understandable form—every kind of information necessary for an accurate and thorough knowledge of air conditioning principles, equipment, and practices. Written by S. R. Lewis, a widely-known consulting engineer who has been active in air conditioning work for more than thirty years, it deals with all angles of the air conditioning subject from the practicing engineer's viewpoint. The designing procedures explained in the book are, for example, in every detail the same procedures employed today by the author's own organization.

Featuring this third edition are several entirely new chapters on phases of the subject not previously treated, including noise control, air conditioning measurements, air conditioning standards, fire protection codes and operating suggestions. Brand new designing examples are also used, together with new forms for recording the design data, the proper filling-in of which is explained step-by-step.

OF VALUE BOTH AS
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Engineers in air conditioning will find the new "Air Conditioning for Comfort" invaluable as a reference book, while salesmen, students, and others may rely on it to give them a clear knowledge of fundamentals, and of the latest air conditioning methods and equipment.

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Post-War Building Backlog

THE backlog of construction projects awaiting the relaxation of government controls and the availability of manpower and building materials exceeds 10½ billion dollars, says F. W. Dodge Corporation.

The data were compiled after special inquiry by Dodge's field staff directed to more than 400,000 persons representing city, county, state and federal government agencies, private industry, commercial, religious, social, educational and other organizations, individual prospective home builders, operative home builders, architects, engineers, contractors, insurance companies, banks and other institutional mortgagees. The compilation covers all states east of the Rocky Mountains and pertains to projects reported up to August 31.

School and college buildings, hospital buildings, manufacturing, loft and office buildings and churches—in the order listed—are the principal nonresidential classifications reported. The backlog of school and college buildings alone amounted to \$767,930,000, and all nonresidential building to \$2,676,373,000.

In the residential field, Dodge reported a backlog of slightly less than a half billion dollars for one-family dwellings to be built for owners to order and by operative builders for sale or rent. The total of residential building, including apartment houses, dormitories and hotels, was \$1,032,066,000.

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Special blades may be obtained for shearing stainless steel.

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Lectro-Shears cut straight lines, irregular patterns or curves down to 3/4" radius. Cutting operation always visible. Two models, 18 and 16 gauge, cut up to rated capacity in steel, 50% more in non-ferrous metal. Universal motor. See your Black & Decker Distributor, or write to: The Black & Decker Mfg. Co., 482 Pennsylvania Ave., Towson 4, Maryland.



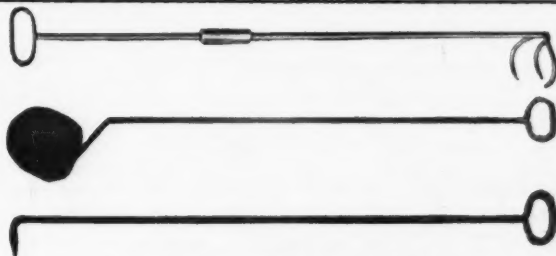
16-gauge . . . \$76

18-gauge
Model . . . \$60

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FORCED AIR HEATING

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Here is a book that presents in simple, readily understandable form ALL the information you need to enable you to design any forced air heating system correctly and efficiently. Outlined in it is a model procedure of design, based on wide experience, which you may follow with absolute confidence on any of your own jobs.

Not only will this handy volume save you hours of time in planning forced air systems, but it will help you in many ways to avoid mistakes in your calculations. Its 23 chapters include, among a wealth of other necessary data, 15 valuable charts, 23 time-saving formulas, and 19 practical tables, with detailed explanations of their proper use.

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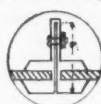
507 Grand Avenue, New Haven 3, Conn.



Ventilator



Putty Bar

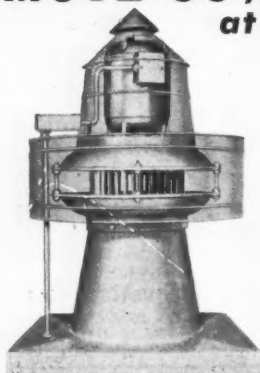


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MOVE 30% MORE AIR at less power cost!



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Accepted everywhere for its phenomenal performance, superior design and splendid construction, the Air-Van Power Exhauster is your answer to all ventilating problems! Write for complete details today.

THE GALLAHER COMPANY
OWATONNA, MINNESOTA

Atomic-Hydrogen Arc Welding

(Continued from page 75)

Carbon Steels

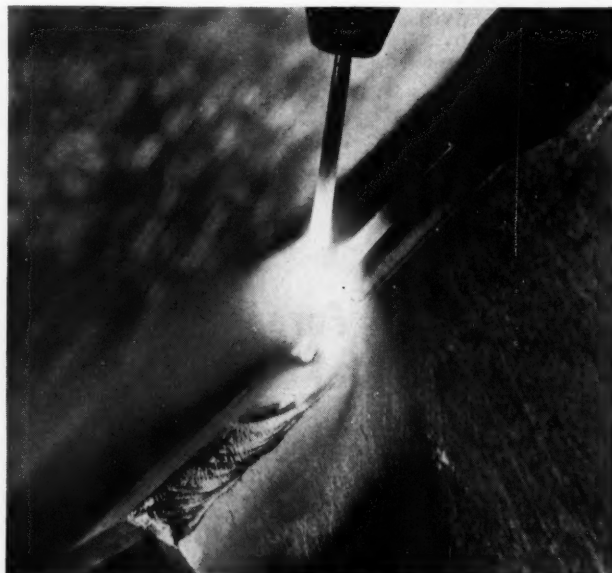
Carbon steels with a carbon content as high as 1.25 per cent have been successfully welded with the atomic-hydrogen process.

Chrome Steel

Chrome steels having a chromium content up to 40 per cent have been successfully welded with this process. The resultant welds are not particularly brittle if the chromium content is less than 20 per cent and usually will not require heat treating. If the chrome content is over 20 per cent, heat treatment after welding will relieve any tendency toward brittleness. Ascoloy, which has a chromium content between 12 and 16 per cent, is included in this class of steel.

Special Alloys

Modifications of chrome steel, particularly by the addition of nickel, have resulted in stainless steels such as KA-2, Enduro, Allegheny metal and super-



The size and shape of the molten pool are the operator's guides to good welding. On a corner joint, such as this, the width of the pool should be about twice the thickness of the work, and the surface should be well rounded.

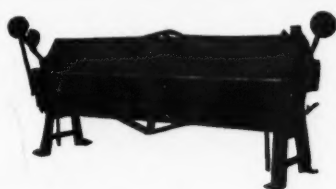
ascology. This addition of nickel aids in welding and makes possible the production of strong ductile welds without the necessity of subsequent heat treatment; that is, as far as the weld itself is concerned. However, it is necessary to heat treat after welding if restoration of full stainless properties is desired.

Nonferrous Alloys

Most nonferrous alloys can be welded successfully by the atomic-hydrogen process. Calorite, a 15 to 20 per cent chromium, 80 to 85 per cent nickel alloy, can be welded, not only in a worked form, but also in the form of a casting. This metal is used for resistance units and heaters for electric furnaces, in

(Continued on page 130)

CHICAGO STEEL BRAKE



BEST BY FORTY-TWO YEARS TEST

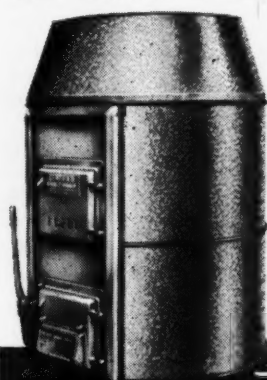
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Stainless Steel
PRODUCTS COMPANY
1000 BERRY AVENUE
SAINT PAUL MINNESOTA

WRITE FOR INFORMATION

NIAGARA
GRAVITY AND FORCED AIR
FURNACES

DURABLE • EFFICIENT • DEPENDABLE • ATTRACTIVE

THE FOREST CITY FOUNDRIES CO.

2500 WEST 27TH ST. • CLEVELAND 13, OHIO

**STATE
SUPPLY
CO.**

WHOLESALE DISTRIBUTORS
**SHEET METAL
FURNACES**
AIR CONDITIONING SUPPLIES

MANUFACTURERS

Are You Looking For An
AGGRESSIVE DISTRIBUTOR?

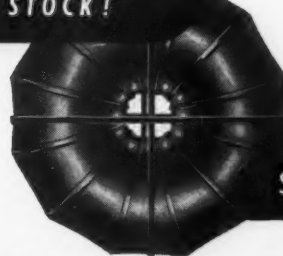
We are a well-established, financially sound firm distributing a number of nationally known lines in Northeastern Ohio. We are interested in establishing new lines...for after the war...NOW. Write for more information.

STATE SUPPLY CO.

1273 EAST 123rd STREET
CLEVELAND 8, OHIO

**IMMEDIATE DELIVERY
FROM STOCK!**

METAL
STRAPPED
FOR SHIPPING



**ELBOWS &
SMOKE PIPE**

KRAUSER-BOYD, INC.

553 RIVER ROAD • N. TONAWANDA, N. Y.

LANCOL

A Definitely Better SOLDERING FLUX

FOR STAINLESS STEEL AND ALL ALLOYS

Used exclusively by many fabricators of Stainless Steel and other metals. Flows freely without rolling up. Provides even coverage. Flows through lap joints without tinning before being lapped. Forms perfect bond. Has no strong corrosive action. Odorless—no injurious fumes. Sample for trial on request.

F. H. LANGSENKAMP COMPANY
Dept. A. 227 East South Street, INDIANAPOLIS, INDIANA

**S A L - M O
ASBESTOS PRODUCTS**

Quality Asbestos Products for all types of insulation. Asbestos Papers, Millboards, Aircell Papers and Pipe Joint Tape. Pipe Covering for all kinds of steam, hot and cold water lines. Asbestos Cements, Ductboard and Supply Duct.

SALL MOUNTAIN COMPANY
176 WEST ADAMS STREET CHICAGO 3, ILL.

PLANING MILL EXHAUSTERS

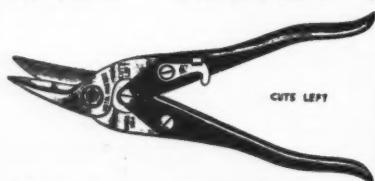
DIAGRAM shows how special streamlined inlet deflects airstream so as to reduce turbulence and back plate erosion. Result: higher over-all efficiency, lower maintenance cost, less time out for service and repairs.



SEND FOR DETAILS including performance and dimensions in Catalog 410.

B. F. STURTEVANT COMPANY.
HYDE PARK BOSTON 36, MASS.

WISS "METAL MASTER"



Compound Action AVIATION SNIPS

Used extensively by leading aviation and metal working industries and in U. S. Government Plants throughout the country.

- Cuts circles, squares and irregular patterns on Stainless, Dural, and Monel Metals with ease.
 - All Parts interchangeable.
 - M1 for cutting left—M2 for cutting right.
- WISS BULLDOG AND STANDARD PATTERN SNIPS are used in Shipyards, on Government construction projects, and on maintenance work wherever sheet metal is required.

Send for literature of complete line
J. WISS & SONS CO.

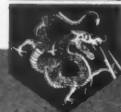
ESTABLISHED 1848

NEWARK, N. J.

ECON-O-COL the "Stronghearted" STOKER

ECON-O-COL
COAL BURNER

ECON-O-COL STOKER DIVISION
COTTA TRANSMISSION CORP.
ROCKFORD ILLINOIS



THE SHIELD OF QUALITY



Will again
be on the market after it's over, but
now it's war work.

COLE HOT BLAST MFG. CORP.
3108 W. 51st St. Chicago 32, Ill.



WAR TIME

Cary Mfg. Co., Waupaca, Wisconsin, reports several of their factory men have gone into the Army and Navy. The company is operating 24 hours a day on sub-contracts, making 33mm shells, also parts for stoves, gunmounts, small engines and some parts for Diesel motors. All present work is war work except service for customers.

Most employees are buying ten per cent of their salary in war bonds and some much more.

Vernon Wetherbee, an employee, and son of Stanley Wetherbee, secretary and treasurer, enlisted in the air corps before Pearl Harbor, became a gunner on a bomber and was on one of the first transports to land in Africa. He spent a year in active service with 37 missions in North Africa and Sicily, and is now instructing in Pueblo, Colorado.—Stanley Weatherbee.

Republic Steel Corporation, Republic Building, Cleveland 1, has more than 18,000 employees in the armed services. Almost the approaching entire output is for war orders. The percentage is determined by WPB. Their 98-inch strip mill, which normally rolled sheets has been converted largely to production of ship plates.

A number of officials are serving in the armed forces and in government offices. Norman W. Foy, General Manager of Sales of Republic Steel, is on leave as Director of the Steel Division, WPB.

One hundred thirty gold stars on the Republic service flag tell their own story.

York Corrugating Company of York, Pa., was presented with the Army & Navy "E" Award on August 9th, 1944, for outstanding accomplishment in the production of war materials.

The York, Pa., plant have been working on important sub-contracts for Amphibious "Ducks," armored heavy duty vehicles and secret armament.

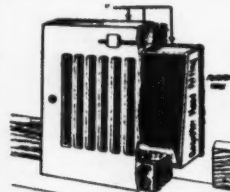
York also manufactures formed roofing products, conductor, trough, etc. and maintains warehouses at York, Pa., Harrisburg, Pa., Washington, D. C., Newark, N. J., Paterson, N. J. and Jersey City, N. J.—Jos. F. Stumpf, Jersey City Branch Manager.

The Steel Products Engineering Company of Springfield, Ohio, has received the Army-Navy "E" Award for the production of vital military equipment. The company manufactures Combustioneer automatic coal burning equipment in peacetime.

Homer Cunningham of Grant Totten, Inc., 1215 McKinley Avenue, S. W., Canton, Ohio, has lost a son on Saipan.

You Can Guarantee Streakless Registers

Make FRIENDS of YOUR CUSTOMERS



Get jobs at a better price against competition.

Simplify and expedite installing Register Heads at less cost, as STREEKNO takes care of any air leaks. STREEKNOTIZING is an uplift for the entire industry, you make a nice profit and eliminate an expensive nuisance for your customer at the same time. Also ties in with every cleaning job. Installed price only \$2.00 per register, 5 to 10 minutes installation time per register.

Live Dealers—Write for literature and details of our profit making plan, or better order one or a few cases from YOUR Jobber today as a starter. Sales literature etc., in every shipping case of 12 register packings at \$8.60.

A PRODUCT OF

EXCEL HEATING and AIR CONDITIONING CO.
3715-19 Belmont Ave. Chicago 18, Ill.

TRADE NEWS



Contractors Supply Company of Green Bay and Sturgeon Bay, Wisconsin, has twenty-three former employees, ranging from the foreman of the Green Bay shop now in the South Pacific in the CB's, to helpers who started working for the company at 16 years of age, now in the service of their country, fighting in every theatre of the war.

The company is engaged 100 per cent in war production, fabricating and installing all of the ventilation pipe, fittings and equipment on all the vessels the Leathem D. Smith Shipbuilding Company of Sturgeon Bay, Wisconsin, contracted to build for the government. The company set up a shop in Sturgeon Bay and converted its Green Bay shop to fabricating Marine ventilators and other equipment such as ammunition cases, water-tight closures, ladder guards, antenna tubes, etc.

The company is advertising for an additional 20 sheet metal mechanics.

About eighty per cent of employees use payroll deduction facilities provided by the company for regular purchase of war bonds. One former employee, Robert Banta, received special citations for bombing missions over Europe. Other former employees have seen action. Two of the 38 PC boats—the PC-496 and the PC-1261—that the company helped build were sunk while in battle.

At present the company has contracts for furnishing and installing all the ventilation work, as well as the major part of all sheet metal work and fittings for 20 338-ft. cargo vessels, 3 net tenders, 3 gun boats, 4 PC boats, and 10 tankers.

Homer Ice and Foundry Corp., Coldwater, Michigan, is engaged practically 90 per cent of capacity in war orders for the Navy.

Russell Wayne Colard, sales engineer, Detroit office, is in service.

The company has a new pattern and carpenter shop, new core room, and a new engine room.

Employees have 100 per cent record for war bond purchases on every campaign.

A great many Homer men in service belong to the original Company A which has been in action since Pearl Harbor, with possibly one-third seeing action in Europe.


Homer offered their services to the Government immediately after war was declared and has operated constantly six and seven days a week each week with a short shut down absolutely necessary for repairs. Production is mainly gray iron casting consisting of motor parts, tank parts and agricultural implement parts for export.—R. B. Strong, Vice President.

C. W. Cornelissen, Jr., son of C. W. Cornelissen of Williams Oil-O-Matic Corporation, Bloomington, Illinois, is serving with the Armed Forces in France.

GILCO

Automatic

FURNACES and WATER HEATERS



J. L. GILLEN CO.

DOWAGIAC • • MICH.



KOOLSTACK FURNACES

FOR STOKERS

OIL or HANDFIRED

50,000 to 200,000 BTU's

Patented Damper
Uses All the Heat
in the Added Heating
Surface

**THAT
IS SOMETHING
TO SELL**

LEADER IRON WORKS, Inc.
Decatur Illinois




ROCK ISLAND

REGISTERS and INTAKES

Two trade marks to remember when you want the height of efficiency, beauty and low cost combined in registers and intakes.

AIR-VANE

Dealers Net Estimating book, a time and money saver, sent free upon request.



★

ROCK ISLAND REGISTER CO.

ROCK ISLAND ILLINOIS

★

Famous Patented *Monogram* Vaporizing Burner

Provides Highest Known Operating Efficiency with Oil

Full Forced
Winter Air
Conditioners

Booster
Gravity
Units



Utility
Room
Units

Automatic
Water
Heaters

The QUINCY STOVE MFG. COMPANY, Quincy, Illinois



MERCROID

Furnace Fan Control is so easy to adjust, and at the same time the accurately calibrated dial shows exactly what you want to see in making the adjustment. The same thing is true of the M-41 Warm Air Furnace Limit Control.

The Mercoid Corporation • 4221 Belmont Ave. • Chicago, Ill.

HEIL IS THE NAME TO REMEMBER

for oil burners . . . oil-designed
furnaces and boilers that assure you of:

- ✓ Satisfied, loyal customers
- ✓ Minimum service trouble
- ✓ Efficient, economical operation
- ✓ Design features that sell
- ✓ Profitable manufacturer-dealer relations

H-1A



THE HEIL CO.

GENERAL OFFICES: MILWAUKEE, WISCONSIN

"GOOD WILL" REPAIR PARTS



Large and Complete Line—For All Makes of
FURNACES, STOVES AND BOILERS

Orders Filled Promptly

THE F. A. KLAINE CO.

(Established 1849)

401 West Front Street

Cincinnati 2, Ohio

RUBYFLUID

SOLDERING FLUX

- Economical
- Fast Acting



For perfect soldering, try Rubyfluid Soldering Flux or Paste. Quality soldering saves time, money and equipment. Use Ruby's Stainless Steel Flux for joining that metal.

RUBY CHEMICAL CO.
74 McDowell St. Columbus, Ohio

Rubyfluid

DOUBLE ADJUSTABLE GRILLES

Design 8050VA—Made in all Standard Sizes; special sizes made to order. Vertical bars on face are adjustable in groups; horizontal bars on back are similarly adjustable. Back louvers can be adjusted from face. Allows vertical deflection of air to right or left from straight flow to 45 degrees right and 45 degrees left; horizontal deflection upward or downward from straight flow to 45 degrees either direction.



FOR PRODUCTION SPEED-UP—
Specify Precision Processed STANFORATED Perforations. Industrial Screens, Filters, Guards, etc., made to specifications for vital industries. Handy catalog sent on request.

STANDARD

**STAMPING &
PERFORATING CO.**

3137 W. 49th PLACE

CHICAGO, ILLINOIS

which the welds are subjected to severe strains which they readily withstand.

A more common nonferrous alloy is brass. As a general rule, alloys of copper and zinc are difficult to weld because of the lower melting point of the zinc. The result, therefore, in welding this metal is that the zinc has a tendency to vaporize before the copper has reached its melting point. When the brass contains more than 40 per cent zinc, welding is practically impossible. For brass with a zinc content of less than 40 per cent, a flux is needed in welding with the atomic-hydrogen process.

The process has also been used successfully in welding monel metal, such as used in gasoline-storage tanks and other applications.

Construction of Solar Water Heater

(Continued from page 82)

will be in a position to convincingly talk to his customers and have them WANT such a heater. The heater built as shown and lodged in the box built like a skylight, insulated and all, will cost him approximately \$95.00. The plumber will charge for tank and his pipe leads \$75.00. And the complete installation for a customer should cost the customer \$350.00—the price charged in Florida.

The question of how much hot water one can get from the heater is answered by the tank capacity. It takes 2 hours of a clear, sunshiny day to heat 75 gallons of water to 120 degrees. It takes about 4 hours to heat the contents of a 200 gallon tank to that degree. Besides, where there is a gas water heater, a thermostatic control can be put in opening the gas heater whenever the water in the tank should need more heat. It costs more to heat city main or well water to 74 degrees than it costs from then on to make it boil.

Eight Ways of Costing Overhead

(Continued from page 45)

overhead. It is suggested that experience figures on installations and service be analyzed to determine the time and materials required to do a certain operation or job because this fact is of greater value than the dollar-and-cents figures recorded, which may change, hence, cannot be accepted "as is" without a check-up. The time it takes to do a job and the materials required are, more or less, fixed on the same operation or job.

Some estimators combine the hourly wage with the overhead cost per labor hour. The result is called the "labor-hour cost." For example, hourly wage is \$1, overhead cost per labor-hour, \$1.25, the labor-hour cost is therefore \$2.25. The estimator makes one computation for labor and overhead.

The Estimate-Cost Sheet shown in an earlier article (AA, August, 1944, page 48) permits the costing of overhead expense on sales, costs or by the labor-hour method.

AMERICAN ARTISAN Service Section

SERVICE SECTION: Rates for display space in the Service Section are \$5.00 per inch per insertion. One-inch minimum space accepted.

Classified Section: Rates for classified advertising are 5 cents for each word including heading and address. Count seven words for keyed address. Minimum \$1.00 for each insertion. Cash must accompany order.

Classified

EQUIPMENT WANTED

Wanted either new or used—36" or 42" rolls; 36" or 42" square shear; 4' brake. State age and price. Address Cline Air Equipment Co., 311 Eighth Avenue, South, Nashville 4, Tennessee.

SALESMAN WANTED

Furnace salesmen wanted: Large furnace manufacturer now expanding sales organization has opening in excellent territories for experienced, hard-hitting sales engineers. Attractive compensation. Salary, bonus and expenses. Write immediately for interview. Address Key 591, American Artisan, 6 No. Michigan, Chicago 2, Illinois.

EQUIPMENT FOR SALE

For Sale: Peck, Stow and Wilcox sheet metal machines; also work bench with stake holders and bench tools. Mrs. John Scott, 307 West Fifth Street, Sterling, Illinois.

"Will lease or sell a first class brick building and sheet metal shop completely set-up with modern fabricating tools and power equipment located downtown in Los Angeles, California."

"This is an ideal set-up for a live wire sheet metal specialty manufacturer who wishes to operate in California or open a branch."

Address: Key No. 586
American Artisan,
6 No. Michigan Ave., Chicago 2, Ill.

Trademark YAGER'S Soldering Salts — Paste Reg.

Two standard fluxes for all soft soldering. Safe, quick, certain. Buy them at your jobbers or write us if he cannot supply you.

1/2 lb., 1 lb., 5 lb. cans; 2 oz., 6 oz., 12 oz.
ALEX. R. BENSON CO., INC., HUDSON, N. Y.

Drill Concrete the Easy Way



WODACK "DO-ALL" ELECTRIC HAMMER AND DRILL

Saves time and money installing expansion anchors. Drills concrete to 1 1/2" dia.; metal to 3/4". Two tools in one. Easy to maintain. Universal motor. Star drills in 17 diameters. Also chisels, bull points, etc. Write for bulletin No. 644.

Wodack Electric Tool Corporation
4627 W. Huron St. Chicago 44, Ill.
Telephone AUstin 9866

SMITH'S CLEAT BENDERS

THE COMPLETE DRIVE CLEATING MACHINE SAVES MORE TIME per joint of pipe, over ordinary hand methods, than any other machine used on square pipe work . . . and it is **USABLE MORE OFTEN**

per job, because it edges the pipe and makes drive cleats to join them together.

NOW TWO SIZES
NO. 12
Takes All Sizes Up to 12"
NO. 18
Takes All Sizes Up to 18"

SEND FOR
DEALERS' LIST.

R. E. SMITH 1513 MONROE,
WAUKEGAN, ILL.

BEADERS: NO. 4 NIA., 24 ga.
BAR FOLDERS: HAND—30" x 20" NIA.; PEXTO: 60" NIA. COMB. FOLDER & BRAKE.
PIPE FOLDERS: 60" NIA. GARA POWER.
CAN MACHY: NO. 190 TORRISWOLD HORIZONTAL AUTO. BOTTOM SEAMER; NO. 22 CAMERON POWER SQUEEZE & FLANGER.
LATHES: 16" x 6" MONARCH M.D.; 16" x 6" PRATT & WHITNEY, Q.C.G.; 14" x 6" BRADFORD, Q.C.G.; 14" x 4" LODGE & SHIPLEY.

NEW 14" x 6" LYON-ROBBINS, GEAR HEAD, No Priority Required. Immediate delivery.

PRESSES, DEEP THROAT: NO. 20 EXCELSIOR, 20" throat; Belt drive, NO. 135-A NIAGARA, 18" throat, B.D.

INTERSTATE Machinery Co., Inc. Yards 5800

1433 W. Pershing Rd., Chicago 9, Ill.

GRAND RAPIDS FURNACE CLEANERS

Write for Details

DOYLE VACUUM
CLEANER CO.

227 Stevens St., S.W.
Grand Rapids 7, Mich.



Better for Every Spraying Purpose

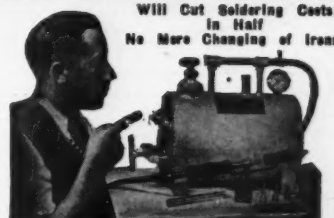
MARLEY SPRAY NOZZLES



"Tops" for Air Washing, Humidifying, Brine Spray Laths, etc. Marley nozzles lead all in sales and in profits to you.

* Finer, more uniform spray.
* Effective operation at Low Pressures. * No internal parts to clog or wear.

Write for Literature Now!
MARLEY CO., INC. Kansas City, Kansas



Will Cut Soldering Costs in Half
No More Changing of Irons
Always the Right Amount of Heat for the Rightest as well as the heaviest jobs. Especially adaptable for soldering with Victory Solder.



Quick set dividers—fastest and most accurate on the market—two sizes for circles up to 36" and 48". Guaranteed—Order now.

REINER & CAMPBELL CO., Inc.
667 Norwood Terrace, Elizabeth, N. J.

QUICK DELIVERY

PRESSES, TOGGLE: NO. 205 ROBINSON, 4 1/2" dia. shaft, 25" between housings.

PRESSES, STILES, NO. 75 BLISS; 6 1/4" throat; WELLS, 6 1/4" throat, 1" Str. ROLLS, POWER: 10" BERTSCH, 3/4" Cap.

ANGLE: 6 x 6 x 3/4" WICKES, Triple Back Grd.; **LEVELER:** 5" NILES, 63" rolls, 6 1/4" dia; 54" McKAY, 4 1/4" rolls M.D.

SHEARS, SQUARING: 8' 16 ga. POWER SQUARE 10' x 3/4". L & A POWER, 24" gap. M.D. less motor; **ROTARY** NO. 6 QUICKWORK, 1" cap, 48" thrt.; 14 ga. YODER, 60" thrt. **SHEAR & CIRCLE, QUICKWORK CIRCLE,** 36" throat, 5/32" cap.

SPOT WELDERS: 250 KW FEDERAL PRESS TYPE; 25 KVA THOMSON; 20 KVA GIBB PRESS TYPE; 10 KVA, 13 KVA, 15 KVA A.E.F.; 12 KVA ACME; 10 KVA TOLEDO, 10 KW FEDERAL.

MISC.: 48" NIA. POWER GROOVER; G & H HYDR. SCRAP BALER.

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easier to work

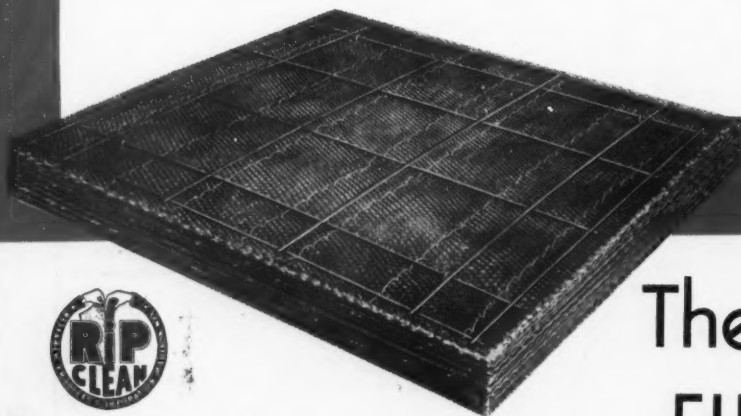
with **Wolff** *Red Seal* **Sheets**
for any sheet metal job

It is no coincidence that sheet metal men by the hundreds concentrate on Wolff Red Seal sheets. Comparative experience in every day shop work has convincingly demonstrated that these laboratory tested, precisely controlled sheets are consistently better—that forming work goes more smoothly, jobs overall are completed faster. If you have an eye for good workmanship and a mind for economy in saving time and checking spoilage, you'll be more satisfied with the performance of Wolff Red Seal sheets. Specify them on your next order.



BENJAMIN WOLFF AND COMPANY
58th St. at Seeley Ave. Chicago, 36 Ill.
176 W. Wisconsin Ave. Milwaukee, 3 Wis.

Have you
an EYE
to increased
profits?



Then you'll push AIR
FILTERS this fall . . .

Pictured above,—the No. "200" Series Research Air Filter . . . with the Re-Fil-Able filter pad held between hooked wire grids. Its "over-size" self-seals and prevents by-passage of un-filtered air.

Never before have air filters been so easy to sell . . . for people appreciate the fact that a furnace works better when the filters are clean . . . that fuel is saved . . . that air is cleaner . . . that housework is saved.



FREE CATALOG of FILTER SIZES

Makes it easy to service air conditioning units. Tells at a glance the number and size of Research Air Filters needed. Write Dept. A6.

RESEARCH AIR FILTERS

Are easy to change . . . and they do the job better, longer. Go after this furnace filter business . . . get the details of the proven "Time to Change" selling campaign.

RESEARCH PRODUCTS CORPORATION

Madison 3, Wisconsin